

Fiche de données de sécurité selon 1907/2006/CE, Article 31

Date d'impression : 28.11.2012

Numéro de version 12

Révision: 28.11.2012

1 Identification de la substance/du mélange et de la société/l'entreprise

· Identificateur de produit

· Nom du produit: **METHYLETHYLKETONE**

· Code du produit: 0081

· No CAS: 78-93-3

· Numéro CE: 201-159-0

· Numéro index: 606-002-00-3

· Numéro d'enregistrement: 01-2119457290-43-xxxx

· Utilisations identifiées pertinentes de la substance ou du mélange et utilisations déconseillées: Voir annexe 1

· Emploi de la substance / de la préparation: Dénaturant
Solvants
Fabrication de produits chimiques

· Renseignements concernant le fournisseur de la fiche de données de sécurité

· Producteur/fournisseur: Société CHARBONNEAUX BRABANT TEL: 03-26-49-58-70
Société P. BRABANT TEL: 03-20-41-28-05
Société FLOURENT BRABANT TEL: 03-20-41-28-05
Société BRABANT CHIMIE TEL: 02-38-87-81-75
Société HAUGUEL Saint Ouen TEL: 01-30-37-00-04
Société HAUGUEL Gonfreville TEL: 02-32-79-55-00

· Service chargé des renseignements: Service Sécurité de la société CHARBONNEAUX BRABANT
5 rue de Valmy - Z.I. Port Sec - BP 341
51062 REIMS CEDEX
Tel: 03 26 49 58 70
Courriel: chimie@charbonneaux.com

· Numéro d'appel d'urgence: ORFILA téléphone: 01 45 42 59 59
SAMU : 15
POMPIERS: 18
Pour connaître la liste des médecins de garde contactez le 15.
Emergency Number 112

2 Identification des dangers

· Classification de la substance ou du mélange

· Classification selon le règlement (CE) n° 1272/2008



GHS02 flamme

Flam. Liq. 2 H225 Liquide et vapeurs très inflammables.



GHS07

Eye Irrit. 2 H319 Provoque une sévère irritation des yeux.
STOT SE 3 H336 Peut provoquer somnolence ou vertiges.

· Classification selon la directive 67/548/CEE ou directive 1999/45/CE



Xi; Irritant

R36: Irritant pour les yeux.



F; Facilement inflammable

R11: Facilement inflammable.

R66-67: L'exposition répétée peut provoquer dessèchement ou gerçures de la peau. L'inhalation de vapeurs peut provoquer somnolence et vertiges.

· Éléments d'étiquetage

· Etiquetage selon le règlement (CE) n° 1272/2008

· Pictogrammes de danger

La substance est classifiée et étiquetée selon le règlement CLP.



GHS02



GHS07

· Mention d'avertissement

· Mentions de danger

Danger

H225

Liquide et vapeurs très inflammables.

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· Conseils de prudence

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H319+EUH066 Provoque une sévère irritation des yeux. L'exposition répétée peut provoquer dessèchement ou gerçures de la peau.

H336 Peut provoquer somnolence ou vertiges.

P210 Tenir à l'écart de la chaleur/des étincelles/des flammes nues/des surfaces chaudes. - Ne pas fumer.

P261 Éviter de respirer les poussières/fumées/gaz/brouillards/vapeurs/aérosols.

P243 Prendre des mesures de précaution contre les décharges électrostatiques.

P305+P351+P338 EN CAS DE CONTACT AVEC LES YEUX: rincer avec précaution à l'eau pendant plusieurs minutes. Enlever les lentilles de contact si la victime en porte et si elles peuvent être facilement enlevées. Continuer à rincer.

P304+P340 EN CAS D'INHALATION: transporter la victime à l'extérieur et la maintenir au repos dans une position où elle peut confortablement respirer.

P403+P233 Stocker dans un endroit bien ventilé. Maintenir le récipient fermé de manière étanche.

· **Autres dangers**

· Résultats des évaluations PBT et vPvB

· PBT:

Le produit ne possède pas de propriétés PBT telles que définies à l'annexe XIII du règlement (CE) n°1907/2006.

· vPvB:

Le produit ne possède pas de propriétés vPvB telles que définies à l'annexe XIII du règlement (CE) n°1907/2006.

3 Composition/informations sur les composants

· **Caractérisation chimique: Substances**

· No CAS Désignation

78-93-3 METHYLETHYLKETONE

· Code(s) d'identification

· Numéro CE:

201-159-0

· Numéro index:

606-002-00-3

· SVHC

néant

4 Premiers secours

· **Description des premiers secours**

· Remarques générales:

Enlever immédiatement les vêtements contaminés par le produit.

Amener les sujets à l'air frais.

· Après inhalation:

En cas d'inconscience, coucher et transporter la personne en position latérale stable.

Amener les sujets à l'air frais et les garder au calme.

· Après contact avec la peau:

Laver immédiatement à l'eau.

En cas d'irritation persistante de la peau, consulter un médecin.

· Après contact avec les yeux:

Rincer les yeux, pendant 15 minutes, sous l'eau courante en écartant bien les paupières et consulter un ophtalmologiste

· Après ingestion:

Ne pas faire vomir sauf indication contraire du corps médical

Tourner sur le côté une personne couchée sur le dos, qui est en train de vomir.

· Indications destinées au médecin:

· Principaux symptômes et effets, aigus et différés

Pas d'autres informations importantes disponibles.

· Indication des éventuels soins médicaux immédiats et traitements particuliers nécessaires

Pas d'autres informations importantes disponibles.

5 Mesures de lutte contre l'incendie

· **Moyens d'extinction**

· Moyens d'extinction:

CO2, poudre d'extinction ou eau pulvérisée. Combattre les foyers importants avec de l'eau pulvérisée ou de la mousse résistant à l'alcool.

Adapter les mesures d'extinction d'incendie à l'environnement.

· **Dangers particuliers résultant de la substance ou du mélange**

Monoxyde de carbone (CO)

· **Conseils aux pompiers**

· Equipement spécial de sécurité:

Porter un appareil de respiration indépendant de l'air ambiant.

Ne pas inhaler les gaz d'explosion et les gaz d'incendie.

· **Autres indications**

Refroidir les récipients en danger en pulvérisant de l'eau.

Récupérer à part l'eau d'extinction contaminée. Ne pas l'évacuer dans les canalisations.

6 Mesures à prendre en cas de dispersion accidentelle

· **Précautions individuelles, équipement de protection et procédures d'urgence**

Porter un appareil de protection respiratoire.

Tenir éloigné des sources d'inflammation.

Porter un équipement de sécurité. Eloigner les personnes non protégées.

Éviter le contact avec la peau et les yeux

· **Précautions pour la protection de l'environnement:**

Éviter de rejeter à l'égout, les fosses et les caves.

Ne pas rejeter dans les canalisations, dans les eaux de surface et dans les nappes d'eau souterraines.

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· **Méthodes et matériel de confinement et de nettoyage:**

Recueillir les liquides à l'aide d'un produit absorbant (sable, kieselguhr, neutralisant, liant universel, sciure).
Assurer une aération suffisante.
Utiliser du matériel antidéflagrant

· **Référence à d'autres sections**

Afin d'obtenir des informations pour une manipulation sûre, consulter le chapitre 7.
Afin d'obtenir des informations sur les équipements de protection personnels, consulter le chapitre 8.
Afin d'obtenir des informations sur l'élimination, consulter le chapitre 13.

7 Manipulation et stockage

· **Manipulation:**

· Précautions à prendre pour une manipulation sans danger

Veiller à une bonne ventilation/aspiration du poste de travail.
Eviter la formation d'aérosols.

· Préventions des incendies et des explosions:

Tenir à l'abri des sources d'inflammation - ne pas fumer.
Des vapeurs peuvent former avec l'air un mélange explosif.
Prendre des mesures contre les charges électrostatiques.
Ne pas vaporiser vers une flamme ou un corps incandescent.

· **Conditions d'un stockage sûr, y compris d'éventuelles incompatibilités**

· Stockage:

· Exigences concernant les lieux et conteneurs de stockage:

Prévoir des sols étanches et résistant aux solvants.
N'utiliser que des emballages spécialement agréés pour la matière/le produit.
Ne pas conserver avec les agents d'oxydation.

· Indications concernant le stockage commun:

Stocker au frais et au sec dans des fûts bien fermés.
Protéger de la forte chaleur et du rayonnement direct du soleil.

· Autres indications sur les conditions de stockage:

· **Utilisation(s) finale(s) particulière(s)**

Pas d'autres informations importantes disponibles.

8 Contrôles de l'exposition/protection individuelle

· **Indications complémentaires pour**

l'agencement des installations techniques: Sans autre indication, voir point 7.

· **Paramètres de contrôle**

· Composants présentant des valeurs-seuil à surveiller par poste de travail:

78-93-3 METHYLETHYLKETONE

VME (France)	Valeur momentanée: 900 mg/m ³ , 300 ppm Valeur à long terme: 600 mg/m ³ , 200 ppm risque de pénétration percutanée
PEL (U.S.A.)	590 mg/m ³ , 200 ppm
REL (U.S.A.)	Valeur momentanée: 885 mg/m ³ , 300 ppm Valeur à long terme: 590 mg/m ³ , 200 ppm
TLV (U.S.A.)	Valeur momentanée: 885 mg/m ³ , 300 ppm Valeur à long terme: 590 mg/m ³ , 200 ppm
AGW (Allemagne)	BEI 600 mg/m ³ , 200 ppm 1(I);DFG, H, Y

· **DNEL**

DNEL (-)

Utilisation finale: Travailleurs
Voies d'exposition: Contact avec la peau
Effets potentiels sur la santé: Effets chroniques
Durée d'exposition: 1 jour
Valeur: 1161 mg/kg

Utilisation finale: Travailleurs
Voies d'exposition: Inhalation
Effets potentiels sur la santé: Effets chroniques
Valeur: 600 mg/m³

Utilisation finale: Consommateurs
Voies d'exposition: Contact avec la peau
Effets potentiels sur la santé: Effets chroniques
Durée d'exposition: 1 jour
Valeur: 412 mg/kg

Utilisation finale: Consommateurs
Voies d'exposition: Inhalation
Effets potentiels sur la santé: Effets chroniques
Valeur: 106 mg/m³

Utilisation finale: Consommateurs
Voies d'exposition: Ingestion
Effets potentiels sur la santé: Effets chroniques
Valeur: 31 mg/kg

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· PNEC

PNEC (-)

Eau douce: 55.8 mg/l
 Eau de mer: 55.8 mg/l
 Sédiment d'eau douce: 284.74 mg/kg
 Sédiment marin: 287.7 mg/kg
 Sol: 22.5 mg/kg

· Remarques supplémentaires:

Le présent document s'appuie sur les listes en vigueur au moment de son élaboration.

· **Contrôles de l'exposition**

· Equipement de protection individuel:

· Mesures générales de protection et d'hygiène:

Respecter les mesures de sécurité usuelles pour l'utilisation de produits chimiques.
 Tenir à l'écart des produits alimentaires, des boissons et de la nourriture pour animaux.
 Retirer immédiatement les vêtements souillés ou humectés.
 Se laver les mains avant les pauses et en fin de travail.
 Ne pas inhaler les gaz, les vapeurs et les aérosols.
 Eviter tout contact avec les yeux et avec la peau.

· Protection respiratoire:

En cas de risque d'exposition au delà des valeurs moyennes d'exposition, port obligatoire d'un équipement individuel de protection respiratoire.
 Attention! Les filtres ont une durée d'utilisation limitée.

· Protection des mains:



Gants de protection

· Matériau des gants

Contrôler la perméabilité avant chaque nouvelle utilisation du gant.

· Temps de pénétration du matériau des gants

Le choix de gants appropriés ne dépend pas seulement du matériau, mais également d'autres critères de qualité qui peuvent varier d'un fabricant à l'autre.
 Le temps de pénétration exact est à déterminer par le fabricant des gants de protection et à respecter.

· Protection des yeux:



Lunettes de protection hermétiques

· Protection du corps:

Vêtements de travail protecteurs

9 Propriétés physiques et chimiques

· **Informations sur les propriétés physiques et chimiques essentielles**

· Indications générales.

· Aspect:

Forme: Liquide
 Couleur: Incolore
 Odeur: Caractéristique

· Changement d'état

Point de fusion: -86,3°C
 Point d'ébullition: 79-80,5°C

· Point d'éclair:

-4°C

· Température d'auto-inflammation:

514°C

· Danger d'explosion:

Le produit n'est pas explosif; toutefois, des mélanges explosifs vapeur-air peuvent se former.

· Limites d'explosion:

Inférieure: 1,8 Vol %
 Supérieure: 11,5 Vol %

· Pression de vapeur à 20°C:

105 hPa

· Densité à 20°C:

0,804-0,807 g/cm³

· Solubilité dans/miscibilité avec l'eau à 20°C:

290 g/l

· Coefficient de partage (n-octanol/eau):

Non déterminé.

· Viscosité:

Dynamique à 15°C: 0,423 mPas

· **Autres informations**

Pas d'autres informations importantes disponibles.

10 Stabilité et réactivité

· **Réactivité**

· Stabilité chimique

· Décomposition thermique/conditions à éviter:

Pas de décomposition en cas d'usage conforme.
 Eviter la chaleur (températures supérieures au point éclair), les étincelles, les points d'ignition, les flammes, l'électricité statique...

· **Conditions à éviter**

Pas d'autres informations importantes disponibles.

· **Matières incompatibles:**

Les agents oxydants

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· **Produits de décomposition dangereux:** Monoxyde de carbone et dioxyde de carbone

11 Informations toxicologiques

· Informations sur les effets toxicologiques

· Toxicité aiguë:

· Valeurs LD/LC50 déterminantes pour la classification:

Oral	LD50	>2000mg/kg mg/kg (rat) (BPL: non) (Valeur de la littérature)
Dermique	LD50	>2000mg/kg mg/kg (rbt) (BPL: non) (Valeur de la littérature)

· Par voie orale:

Les données disponibles indiquent que les critères de classification ne sont pas remplis

· Par voie cutanée:

Les données disponibles indiquent que les critères de classification ne sont pas remplis

· Par inhalation:

Les données disponibles indiquent que les critères de classification ne sont pas remplis

· Effet primaire d'irritation:

· Corrosion cutanée / irritation cutanée:

L'exposition répétée peut provoquer dessèchement ou gerçures de la peau.

· Lésions oculaires graves / irritation oculaire

Provoque une sévère irritation des yeux.

· Sensibilisation:

Aucun effet de sensibilisation connu.

· Toxicité spécifique pour certains organes cibles (STOT):

· après une exposition répétée:

Les données disponibles indiquent que les critères de classification ne sont pas remplis

· après une exposition unique:

Peut provoquer somnolence ou vertiges.

· Toxicité par aspiration:

Pas d'effet.

· Effets CMR (cancérogène, mutagène et toxique pour la reproduction):

· Cancérogénicité:

Les données disponibles indiquent que les critères de classification ne sont pas remplis

· Mutagénicité sur les cellules germinales:

Les données disponibles indiquent que les critères de classification ne sont pas remplis

· Toxique pour la reproduction:

Les données disponibles indiquent que les critères de classification ne sont pas remplis

12 Informations écologiques

· Toxicité

· Toxicité aquatique:

CE50 (écologique) (statique)	>100mg/l, 7jour mg/l (ALGUES) (BPL: non) Desmodesmus subspicatus
	>100mg/l, 48h mg/l (DAPHNIES) (BPL: non) Daphnia magna
LC50 (écologique) (statique)	>100mg/l, 48h mg/l (POISSONS) (BPL: non) Leuciscus idus

· Persistance et dégradabilité

Facilement biodégradable.

Biodegradabilité 98 % (-)

Facilement biodégradable

· Comportement dans les compartiments de l'environnement:

· Potentiel de bioaccumulation

Pas d'autres informations importantes disponibles.

Log Pow 0,3 (-)

· Mobilité dans le sol

Pas d'autres informations importantes disponibles.

· Autres indications écologiques:

· Valeur DCO:

Information non disponible

· Valeur DBO5:

Information non disponible

· Résultats des évaluations PBT et VPVB

· PBT:

Le produit ne possède pas de propriétés PBT telles que définies à l'annexe XIII du règlement (CE) n°1907/2006.

· vPvB:

Le produit ne possède pas de propriétés vPvB telles que définies à l'annexe XIII du règlement (CE) n°1907/2006.

· Autres effets néfastes

Pas d'autres informations importantes disponibles.

13 Considérations relatives à l'élimination

· Méthodes de traitement des déchets

· Recommandation:

Ne doit pas être évacué avec les ordures ménagères. Ne pas laisser pénétrer dans les égouts. Pour la manipulation des déchets, prendre les précautions définies aux chapitres 7 et 8.

· Code déchet:

Des données concernant l'utilisation par le consommateur sont nécessaires pour déterminer le code déchet.

· Emballages non nettoyés:

· Recommandation:

Les emballages ne pouvant pas être nettoyés doivent être évacués de la même manière que le produit.

Ne pas découper, perforez ou souder sur ou à proximité des emballage vides.

Les emballages vides peuvent contenir des résidus dangereux.

Ne pas retirer l'étiquette de l'emballage tant qu'il n'est pas nettoyé.

Ne pas traiter l'emballage vide comme un déchets ménager.

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Ne pas incinérer un emballage fermé.

14 Informations relatives au transport

· No ONU · ADR, IMDG, IATA	UN1193
· Nom d'expédition des Nations unies · ADR · IMDG, IATA	1193 ÉTHYLMÉTHYLÉTONE (MÉTHYLÉTHYLÉTONE) ETHYL METHYL KETONE (METHYL ETHYL KETONE)
· Classe(s) de danger pour le transport · ADR	
	
· Classe · Étiquette	3 (F1) Liquides inflammables. 3
· IMDG, IATA	
	
· Class · Label	3 Flammable liquids. 3
· Groupe d'emballage · ADR, IMDG, IATA	II
· Précautions particulières à prendre par l'utilisateur · Indice Kemler: · No EMS:	Attention: Liquides inflammables. 33 F-E,S-D
· Transport en vrac conformément à l'annexe II de la convention Marpol 73/78 et au recueil IBC	Non applicable.
· Indications complémentaires de transport:	
· ADR · Quantités limitées (LQ) · Catégorie de transport · Code de restriction en tunnels	1L 2 D/E
· "Règlement type" de l'ONU:	UN1193, ÉTHYLMÉTHYLÉTONE (MÉTHYLÉTHYLÉTONE), 3, II

15 Informations réglementaires

· Réglementations/législation particulières à la substance ou au mélange en matière de sécurité, de santé et d'environnement	
· Étiquetage selon le règlement (CE) n° 1272/2008	voir chapitre 2
· Indications sur les restrictions de travail:	Respecter les réglementations nationales applicables (ICPE, Code du travail, Maladies professionnelles...)
· Substances extrêmement préoccupantes (SVHC) selon REACH, article 57	Néant
· Évaluation de la sécurité chimique:	Une évaluation de la sécurité chimique a été réalisée.

16 Autres informations

Ces indications sont fondées sur l'état actuel de nos connaissances, mais ne constituent pas une garantie quant aux propriétés du produit et ne donnent pas lieu à un rapport juridique contractuel.

Pour la France, en cas d'intoxication, appelez le Centre Antipoison (de préférence de votre région) ou le SAMU (15)

Angers: 02 41 48 21 21 - Bordeaux: 05 56 96 40 80

Lille: 0 825 812 822 - Lyon: 04 72 11 69 11

Marseille: 04 91 75 25 25 - Nancy: 03 83 32 36 36

Paris: 01 40 05 48 48 - Rennes: 02 99 59 22 22

Strasbourg: 03 88 37 37 37 - Toulouse: 05 61 77 74 47

· Acronymes et abréviations:	RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA) ICAO: International Civil Aviation Organization ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
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*ADR: Accord européen sur le transport des marchandises dangereuses par Route**IMDG: International Maritime Code for Dangerous Goods**DOT: US Department of Transportation**IATA: International Air Transport Association**GHS: Globally Harmonized System of Classification and Labelling of Chemicals**EINECS: European Inventory of Existing Commercial Chemical Substances**CAS: Chemical Abstracts Service (division of the American Chemical Society)**DNEL: Derived No-Effect Level (REACH)**PNEC: Predicted No-Effect Concentration (REACH)**LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent*

* Données modifiées par rapport à la version précédente

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Annexe: Scénario d'exposition· **Désignation brève du scénario d'exposition** Voir annexe 1.

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METHYL ETHYL KETONE

Version 9.0

Date de révision 07.12.2010

Date d'impression 08.12.2010

Abschnitt 1.01 9. EXPOSURE ASSESSMENT

Methyl Ethyl Ketone (MEK)

Table 1. Overview of Exposure Scenarios for MEK

ES #	Exposure Scenario
1	Manufacture of Substance and use as intermediate – Industrial
2	Distribution of Substance - Industrial
3	Formulation & (Re)packing of Substances and Mixtures – Industrial
4	Uses in Coatings – Industrial
5	Uses in Coatings – Professional
6	Uses in Coatings – Consumer
7	Uses in Cleaning Agents – Industrial
8	Uses in Cleaning Agents – Professional
9	Uses in Cleaning Agents – Consumer
10	Lubricants – Industrial
11	Lubricants – Consumer
12	Metal Working Fluids – Industrial
13	Use as Binders and Release Agents – Industrial
14	Use as Binders and Release Agents – Professional
15	Use in Agrochemicals – Professional
16	Use in Agrochemicals – Consumer
17	Use as a Fuel – Industrial
18	Use as a Fuel – Professional
19	Use as a Fuel – Consumer
20	Functional Fluids – Consumer
21	Road and Construction Applications – Professional
22	Use in Laboratories – Industrial
23	Use in Laboratories – Professional
24	Explosives Manufacture and Use – Professional
25	Polymer Processing - Industrial
26	Water Treatment - Industrial
27	Water Treatment – Professional
28	De-icing and Anti-icing Applications - Professional

METHYL ETHYL KETONE

Version 9.0

Date de révision 07.12.2010

Date d'impression 08.12.2010

See next Page for details

Table 2. Exposure Scenarios with use descriptors for MEK

METHYL ETHYL KETONE

Version 9.0

Date de révision 07.12.2010

Date d'impression 08.12.2010

Table 33. Exposure Scenarios with use descriptors for MEK

ES number	Manufacture	Identified uses			Resulting life cycle stage		Linked to Identified Use	Sector of Use (SU)	Preparation Category (PC)	Process category (PROC)	Article category (AC)	Environmental Release Category (ERC)
		Formulation	End use	Consumer use	Service life (for articles)	Waste stage						
1a & 1b	X						3, 8, 9	NA	1, 2, 3, 4, 8a, 8b, 15	NA	1, 4, 6a	
2	X						3, 8, 9	NA	1, 2, 3, 4, 8a, 8b, 9, 15	NA	1, 2, 3, 4, 5, 6a, 7	
3		X					3, 10	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15	NA	2	
4		X					3	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 10, 13, 15	NA	4	
5			X				22	NA	1, 2, 3, 4, 5, 8a, 8b, 10, 11, 13, 15, 19	NA	8a, 8d	
6				X			21	1, 4, 9, 15, 18, 23, 24, 31, 34	NA	NA	8a, 8d	
7			X				3	NA	1, 2, 3, 4, 7, 8a, 8b, 10, 13	NA	4	
8			X				22	NA	1, 2, 3, 4, 8a, 8b, 10, 11, 13	NA	8a, 8d	
9				X			21	3, 4, 8, 9, 24, 35, 38	NA	NA	8a, 8d	
10			X				3	NA	1, 2, 3, 4, 7, 8a, 8b, 9, 10, 13, 17, 18	NA	4, 7	
11				X			21	1, 24, 31	NA	NA	8a, 8d, 9a, 9b	
12			X				3	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 15, 17	NA	4	
13			X				3	NA	1, 2, 3, 4, 6, 7, 8b, 10, 13, 14	NA	4	

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ES number	Manufacture	Identified uses			Resulting life cycle stage	Linked to Identified Use	Sector of Use (SU)	Preparation Category (PC)	Process category (PROC)	Article category (AC)	Environmental Release Category (ERC)
		Formulation	End use	Consumer use							
14		X				22	NA	1, 2, 3, 4, 6, 8a, 8b, 10, 11, 14	NA	8a, 8d	
15		X				22	NA	1, 2, 4, 8a, 8b, 11, 13	NA	8a, 8d	
16			X			21	12, 27	NA	NA	8a, 8d	
17		X				3	NA	1, 2, 3, 8a, 8b, 16	NA	7	
18		X				22	NA	1, 2, 3, 8a, 8b, 16	NA	9a, 9b	
19			X			21	13	NA	NA	9a, 9b	
20			X			21	16, 17	NA	NA	9a, 9b	
21		X				22	NA	8a, 8b, 9, 10, 11, 13	NA	8d, 8f	
22		X				3	NA	10, 15	NA	2, 4	
23		X				22	NA	10, 15	NA	8a	
24		X				22	NA	1, 3, 5, 8a, 8b	NA	8e	
25		X				3	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 13, 14, 21	NA	4	
26		X				3	NA	1, 2, 3, 4, 8a, 8b, 13	NA	3	
27		X				22	NA	1, 2, 3, 4, 8a, 8b, 13	NA	8f	
28		X				22	NA	8b, 10, 11	NA	8d	

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(a) 9.1a. Manufacture of Substance – Industrial

(i) 9.1a.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Manufacture of substance, (Methyl ethyl ketone, CAS 78-93-3)
Sector of Use	Industrial (SU3, SU8, SU9)
Process Category	PROC1, PROC2, PROC3, PROC4, PROC8A, PROC8B, PROC15
Article Category	
Environmental Release Category	ERC1, (ERC4)
Processes, tasks, activities covered	Manufacture of the substance or use as a process chemical or extraction agent within closed or contained systems. Includes incidental exposures during recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100% [G13]
Amounts used	not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	
Operational Conditions	Risk management measures
General exposures (closed systems) [CS15]	No specific measures identified EI18
General exposures (open systems) [CS16]	No specific measures identified EI18
Process sampling [CS2]	No specific measures identified EI18
Laboratory activities [CS36]	No specific measures identified EI18
Bulk transfers [CS14] , (open systems) [CS108]	No specific measures identified EI18
Bulk transfers [CS14] , (closed systems) [CS107]	No specific measures identified EI18
Equipment cleaning and maintenance [CS39]	Drain down system prior to equipment break-in or maintenance E65.

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Storage [CS67]	Store substance within a closed system. E84
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	
Health sub-headings	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Health sub-headings	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.1.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.1 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.1a.2 Exposure Estimation

1) 9.1a.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 1.

2) 9.1a.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(b) 9.1b. Use of substance as intermediate – Industrial

(i) 9.1b.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Use of substance as intermediate, (Methyl ethyl ketone, CAS 78-93-3)
Sector of Use	Industrial (SU3, SU8, SU9)
Process Category	PROC1, PROC2, PROC3, PROC4, PROC8A, PROC8B, PROC15
Article Category	
Environmental Release Category	ERC6a

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Processes, tasks, activities covered	Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100% [G13]
Amounts used	not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	
Operational Conditions	Risk management measures
General exposures (closed systems) [CS15]	No specific measures identified EI18
General exposures (open systems) [CS16]	No specific measures identified EI18
Process sampling [CS2]	No specific measures identified EI18
Laboratory activities [CS36]	No specific measures identified EI18
Bulk transfers [CS14] , (open systems) [CS108]	No specific measures identified EI18
Bulk transfers [CS14] , (closed systems) [CS107]	No specific measures identified EI18
Equipment cleaning and maintenance [CS39]	Drain down system prior to equipment break-in or maintenance E65.
Storage [CS67]	Store substance within a closed system. E84
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	

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Health sub-headings	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Health sub-headings	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.1.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.1 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.1b.2 Exposure Estimation

1) 9.1b.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 1.

2) 9.1b.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(c) 9.2. Distribution of Substance – Industrial

(i) 9.2.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Distribution of substance, (Methyl ethyl ketone, CAS 78-93-3)
Sector of Use	Industrial (SU3, SU8, SU9)
Process Category	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC 9, PROC15
Article Category	
Environmental Release Category	ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC7
Processes, tasks, activities covered	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities
Section 2	Operational conditions and risk management measures
Section 2.1	
Control of worker exposure	
Product characteristics	
Physical form of product	Liquid

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Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100% [G13]
Amounts used	not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	
Operational Conditions	Risk management measures
General exposures (closed systems) [CS15]	Handle substance within a closed system E47, No other specific measures identified EI20.
General exposures (open systems) [CS16]	Clear transfer lines prior to de-coupling E39 No other specific measures identified EI20
Process sampling [CS2]	No specific measures identified EI18
Laboratory activities [CS36]	No specific measures identified EI18
Bulk transfers [CS14] , (open systems) [CS108]	No specific measures identified EI18
Bulk transfers [CS14] , (closed systems) [CS107]	Handle substance within a closed system. E47, No other specific measures identified EI20.
Drum and small package filling [CS6]	Fill containers/cans at dedicated fill points supplied with local extract ventilation E51, No other specific measures identified EI20.
Equipment cleaning and maintenance [CS39]	Apply vessel entry procedures including use of forced supplied air AP15, No other specific measures identified EI20.
Storage [CS67]	No specific measures identified EI18
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	
Health sub-headings	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Health sub-headings	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

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Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.2.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.2 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.2.2 Exposure Estimation

1) 9.2.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 2.

2) 9.2.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(d) 9.3 Formulation & (Re)packing of Substances and Mixtures – Industrial

(i) 9.3.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Formulation & (re)packing of substances and mixtures, (Methyl ethyl ketone, CAS 78-93-3)
Sector of Use	Industrial (SU3, SU10)
Process Category	PROC1, PROC2, PROC3, PROC4, PROC 5, PROC8a, PROC8b, PROC 9, PROC 14, PROC15
Article Category	
Environmental Release Category	ERC2
Processes, tasks, activities covered	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100% [G13]
Amounts used	not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	not applicable

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Other Operational Conditions affecting worker exposure	
Operational Conditions	Risk management measures
General exposures (closed systems) [CS15]	Handle substance within a closed system. E47 No other specific measures identified EI20,
General exposures (open systems) [CS16]	No specific measures identified EI18,
Batch processes at elevated temperatures [CS136]	No specific measures identified EI18
Process sampling [CS2]	No specific measures identified EI18
Laboratory activities [CS36]	No specific measures identified EI18
Bulk transfers [CS14]	No specific measures identified EI18
Mixing operations (open systems) [CS30]	Wear a respirator conforming to EN140 with Type A filter or better. PPE22,
Manual [CS34] Transfer from/pouring from containers [CS22]	Use drum pumps or carefully pour from container E64, No other specific measures identified EI18,
Drum/batch transfers [CS8]	Use drum pumps or carefully pour from container. E64 No other specific measures identified EI18,
Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]	Wear a respirator conforming to EN140 with Type A filter or better. PPE22, No other specific measures identified EI18,
Drum and small package filling [CS6]	Fill containers/cans at dedicated fill points supplied with local extract ventilation E51
Equipment cleaning and maintenance [CS39]	Apply vessel entry procedures including use of forced supplied air. AP15 Drain down and flush system prior to equipment break-in or maintenance. E55
Storage [CS67]	Store substance within a closed system. E84 Transfer via enclosed lines. E52 Locate bulk storage outdoors E2
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	
Health sub-headings	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	

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Health sub-headings	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23
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Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.3.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.3 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.3.2 Exposure Estimation

1) 9.3.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 3.

2) 9.3.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(e) 9.4 Uses in Coatings – Industrial

(i) 9.4.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Coatings (Industrial Application) ; CAS: 78-93-3
Use Descriptor	Sector of Use: Industrial (SU3)
	Process Categories: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15
	Environmental Release Categories: ERC 4
Processes, tasks, activities covered	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 % [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2].
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions	Assumes use at not more than 20 deg above ambient temperature [G15].

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affecting worker exposure	
	Assumes a good basic standard of occupational hygiene is implemented [G1].
Risk Management Measures	<i>Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment, see e-SDS Section 5 below.</i>
General exposures (closed systems) [CS15].	Handle substance within a closed system [E47]
General exposures (closed systems) [CS15]. with sample collection [CS56]. Use in contained systems [CS38].	Handle substance within a closed system [E47]. Ensure material transfers are under containment or extract ventilation [E66]
Film formation - air drying [CS95].	Handle substance within a closed system [E47]. Ensure material transfers are under containment or extract ventilation [E66].
Mixing operations (closed systems) [CS29]. General exposures (closed systems) [CS15].	Handle substance within a closed system [E47]. Ensure material transfers are under containment or extract ventilation [E66].
Film formation - air drying [CS95].	Provide extract ventilation to points where emissions occur [E54]
Preparation of material for application [CS96]. Mixing operations (open systems) [CS30].	Provide extract ventilation to points where emissions occur [E54]
Spraying (automatic/robotic) [CS97].	Carry out in a vented booth provided with laminar airflow [E59]
Manual [CS34]. Spraying [CS10].	Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour) [E40]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]
Material transfers [CS3].	Clear transfer lines prior to de-coupling [E39]
Material transfers [CS3].	Clear transfer lines prior to de-coupling [E39]
Roller, spreader, flow application [CS98].	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60].
Dipping, immersion and pouring [CS4].	Provide extract ventilation to points where emissions occur [E54]. Avoid manual contact with wet work pieces [EI17].
Laboratory activities [CS36].	Provide extract ventilation to points where emissions occur [E54]
Material transfers [CS3]. Drum/batch transfers [CS8]. Transfer from/pouring from containers [CS22].	Ensure transfer points are supplied with extract ventilation [E73]
Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100].	Provide extract ventilation to points where emissions occur [E54]
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

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Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.4.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.4 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.4.2 Exposure Estimation

1) 9.4.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 4.

2) 9.4.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(f) 9.5 Uses in Coatings –Professional

(i) 9.5.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Coatings (Professional Application); CAS: 78-93-3
Use Descriptor	Sector of Use: Professional (SU22)
	Process Categories: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19
	Environmental Release Categories: ERC 8A, ERC 8D
Processes, tasks, activities covered	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation), and equipment cleaning, maintenance and associated laboratory activities.
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 % [G13].

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Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2].
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20 deg above ambient temperature [G15].
	Assumes a good basic standard of occupational hygiene is implemented [G1].
Risk Management Measures	<i>Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment, see e-SDS Section 5 below.</i>
General exposures (closed systems) [CS15].	Handle substance within a closed system [E47].
Filling / preparation of equipment from drums or containers. [CS45].	Handle substance within a closed system [E47]. Ensure material transfers are under containment or extract ventilation [E66].
General exposures (closed systems) [CS15]. Use in contained systems [CS38].	Handle substance within a closed system [E47]. Ensure material transfers are under containment or extract ventilation [E66].
Preparation of material for application [CS96].	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60].
Film formation - air drying [CS95]. Outdoor [OC9].	Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Film formation - air drying [CS95]. Indoor [OC8].	Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour) [E40]. Provide extract ventilation to points where emissions occur [E54].
Preparation of material for application [CS96]. Indoor [OC8].	Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour) [E40]. Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. Or: TIER-2 assessments are needed for risk characterization
Preparation of material for application [CS96]. Outdoor [OC9].	Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. Or: TIER-2 assessments are needed for risk characterization.
Material transfers [CS3]. Drum/batch transfers [CS8].	Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. [E1]. Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Material transfers [CS3]. Drum/batch transfers [CS8].	Ensure transfer points are supplied with extract ventilation [E73]

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Roller, spreader, flow application [CS98]. Indoor [OC8].	Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. [E1]. Or: TIER-2 assessments are needed for risk characterization
Roller, spreader, flow application [CS98]. Outdoor [OC9].	Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. Or: TIER-2 assessments are needed for risk characterization.
Manual [CS34]. Spraying [CS10]. Indoor [OC8].	Carry out in a vented booth [E57]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Manual [CS34]. Spraying [CS10]. Outdoor [OC9].	Avoid carrying out operation for more than 4 hours [OC12]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Dipping, immersion and pouring [CS4]. Indoor [OC8].	Provide extract ventilation to points where emissions occur [E54]. Avoid manual contact with wet work pieces [EI17].
Dipping, immersion and pouring [CS4]. Outdoor [OC9].	Ensure operation is undertaken outdoors [E69]. Avoid manual contact with wet work pieces [EI17].
Laboratory activities [CS36].	Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour) [E40].
Hand application - fingerpaints, pastels, adhesives [CS72]. Indoor [OC8].	Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. [E1]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Hand application - fingerpaints, pastels, adhesives [CS72]. Outdoor [OC9].	Ensure operation is undertaken outdoors [E69]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.5.

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These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.5 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.5.2 Exposure Estimation

1) 9.5.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 5.

2) 9.5.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(g) 9.6 Uses in Coatings – Consumer

(i) 9.6.1 Exposure Scenario

Section 1		Exposure Scenario Title
Title		Uses in Coatings
Sector of Use (SU code)		21
Use Descriptor (PC codes)		PC1, PC4, PC8 (excipient only), PC9, PC15, PC18, PC23, PC24, PC31, PC34
Processes, tasks, activities covered		Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.
Environmental Release Category		ERC 8a, 8d
Specific Environmental Release Category		
Section 2		Operational conditions and risk management measures
Section 2.1		Control of consumer exposure
<i>Product characteristics</i>		
Physical form of product		liquid
Vapour pressure		12600 Pa
Concentration of substance in product		Unless otherwise stated, cover concentrations up to 100% [ConsOC1]
<i>Amounts used</i>		Unless otherwise stated, covers use amounts up to 13800g [ConsOC2]; covers skin contact area up to 857.5cm ² [ConsOC5]
<i>Frequency and duration of use/exposure</i>		Unless otherwise stated, covers use frequency up to 1 times per day [ConsOC4]; covers exposure up to 6 hours per event [ConsOC14]
<i>Other Operational Conditions affecting exposure</i>		Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m ³ room [ConsOC11]; assumes use with typical ventilation

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		[ConsOC8].
Section 2.1.1		Product categories
PC1:Adhesives, sealants--Glues, hobby use	OC	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm2 [ConsOC5]; for each use event, covers use amounts up to 9g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC1:Adhesives, sealants--Glues DIY-use (carpet glue, tile glue, wood parquet glue)	OC	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 1 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 110.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 6390g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 6.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC1:Adhesives, sealants--Glue from spray	OC	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm2 [ConsOC5]; for each use event, covers use amounts up to 85.05g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC1:Adhesives, sealants--Sealants	OC	Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm2 [ConsOC5]; for each use event, covers use amounts up to 75g [ConsOC2]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 1.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC4_n:Anti-freeze and de-icing products--Washing car window	OC	Unless otherwise stated, covers concentrations up to 1% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 0.5g [ConsOC2]; Covers use in a one car garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.02hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC4_n:Anti-freeze and de-icing products--Pouring into radiator	OC	Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 2000g [ConsOC2]; Covers use in a one car garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to

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		0.17hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC8_n: Biocidal products (excipient use only for solvent products)--Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)	OC	Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 128 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 27g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC8_n: Biocidal products (excipient use only for solvent products)--Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	OC	Unless otherwise stated, covers concentrations up to 15% [ConsOC1]; covers use up to 128 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC9a:Coatings and paints, fillers putties, thinners--Solvent rich, high solid, water borne paint	OC	Unless otherwise stated, covers concentrations up to 27.5% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 744g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
Solvent rich, high solid, water borne paint--Tier 2: ConsExpo estimates	OC		0
	RMM		
PC9a:Coatings and paints, fillers putties, thinners--Aerosol spray can	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 2 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 215g [ConsOC2]; Covers use in a one car garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
Aerosol spray can --Tier 2: ConsExpo estimates	OC		0
	RMM		
PC9a:Coatings and paints, fillers putties, thinners--Removers (paint-, glue-, wall paper-, sealant-remover)	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 3 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 491g [ConsOC2]; covers	

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		use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
Removers (paint-, glue-, wall paper-, sealant-remover)--Tier 2: ConsExpo estimates	OC	0
	RMM	
PC9b:Fillers, putties, plasters, modeling clay--Fillers and putty	OC	Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm2 [ConsOC5]; for each use event, covers use amounts up to 85g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
Fillers and putty --Tier 2: ConsExpo estimates	OC	0
	RMM	
PC9b:Fillers, putties, plasters, modeling clay--Plasters and floor equalizers	OC	Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 13800g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
Plasters and floor equalizers--Tier 2: ConsExpo estimates	OC	0
	RMM	
PC15_n: Non-metal surface treatment products--Solvent rich, high solid, water borne paint	OC	Unless otherwise stated, covers concentrations up to 27.5% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 744g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
Solvent rich, high solid, water borne paint--Tier 2: ConsExpo estimates	OC	0
	RMM	
PC15_n: Non-metal surface treatment products--Aerosol spray can	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 2 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 215g [ConsOC2]; Covers use in a one car garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];

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	RMM	No specific RMMs identified beyond those OCs stated
Aerosol spray can --Tier 2: ConsExpo estimates	OC	0
	RMM	
PC15_n: Non-metal surface treatment products--Removers (paint-, glue-, wall paper-, sealant-remover)	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 3 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm ² [ConsOC5]; for each use event, covers use amounts up to 491g [ConsOC2]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
Removers (paint-, glue-, wall paper-, sealant-remover)--Tier 2: ConsExpo estimates	OC	0
	RMM	
PC18_n: Ink and toners--Inks and toners.	OC	Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 71.40 cm ² [ConsOC5]; for each use event, covers use amounts up to 40g [ConsOC2]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC23_n: Leather tanning, dye, finishing, impregnation and care products--Polishes, wax / cream (floor, furniture, shoes)	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 29 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 56g [ConsOC2]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 1.23hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC23_n: Leather tanning, dye, finishing, impregnation and care products--Polishes, spray (furniture, shoes)	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 8 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 56g [ConsOC2]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC24: Lubricants, greases, and release products--Liquids	OC	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m ³) under typical ventilation [ConsOC10]; covers use in room size of 34m ³ [ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated

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Liquids--Tier 2: skin permeability for dermall- if go this route and RCR still >1, select the set of DNEL band conditions from Tier1 that will provide RCR<1	OC		0
	RMM		
PC24: Lubricants, greases, and release products--Pastes	OC	Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 10 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 34g [ConsOC2]; covers use in room size of 20m3[ConsOC11];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC24: Lubricants, greases, and release products--Sprays	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 73g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC31:Polishes and wax blends--Polishes, wax / cream (floor, furniture, shoes)	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 29 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 142g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 1.23hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC31:Polishes and wax blends--Polishes, spray (furniture, shoes)	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 8 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC34_n: Textile dyes, finishing and impregnating products--	OC	Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 115g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 1.00hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
Section 2.2		Control of environmental exposure - these can be hidden or removed in this consumer GES	
		No exposure assessment presented for the environment. [G40]	
Section 3		Exposure Estimation	

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3.1. Health		
Health sub-headings		Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented.
Section 4		Guidance to check compliance with the Exposure Scenario
4.1. Health		
Health sub-headings		The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.6.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.6 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.6.2 Exposure Estimation

1) 9.6.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 6.

2) 9.6.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(h) 9.7 Uses in Cleaning Agents – Industrial

(i) 9.7.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	The industrial use as a component of cleaning products.; CAS: 78-93-3
Use Descriptor	Sector of Use: Industrial (SU3)
	Process Categories: PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC10, PROC13
	Environmental Release Categories: ERC4

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Processes, tasks, activities covered	Covers the industrial use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 % [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2].
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20 deg above ambient temperature [G15].
	Assumes a good basic standard of occupational hygiene is implemented [G1].
Risk Management Measures	<i>Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures, 4. Personal protection. Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment.</i>
Bulk transfers [CS14].	Ensure material transfers are under containment or extract ventilation [E66].
Automated process with (semi) closed systems. [CS93]. Use in contained systems [CS38].	Avoid carrying out operation for more than 4 hours [OC12]., or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Automated process with (semi) closed systems. [CS93]. Drum/batch transfers [CS8]. Use in contained systems [CS38].	Avoid carrying out operation for more than 1 hour [OC11]., or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Application of cleaning products in closed systems [CS101].	Avoid carrying out operation for more than 4 hours [OC12]., or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Filling / preparation of equipment from drums or containers. [CS45].	Ensure material transfers are under containment or extract ventilation [E66]

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Use in contained batch processes [CS37].	Provide extract ventilation to points where emissions occur [E54]
Degreasing small objects in cleaning station [CS41].	Provide extract ventilation to points where emissions occur [E54]
Cleaning with low-pressure washers [CS42].	Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour) [E40]. Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Cleaning with high pressure washers [CS44].	Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour) [E40]. Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Manual [CS34]. Surfaces [CS48]. Cleaning [CS47]. no spraying [CS60].	Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour) [E40]. Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.7.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.7 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.7.2 Exposure Estimation

1) 9.7.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature.

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Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 7.

2) 9.7.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(i) 9.8 Uses in Cleaning Agents – Professional

(i) 9.8.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	The professional use as a component of cleaning products.; CAS: 78-93-3
Use Descriptor	Sector of Use: Professional (SU22)
	Process Categories: PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13
	Environmental Release Categories: ERC8A, 8B
Processes, tasks, activities covered	Covers the professional use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa [OC5].
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100 % [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2].
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20 deg above ambient temperature [G15].
	Assumes a good basic standard of occupational hygiene is implemented [G1].
Risk Management Measures	<i>Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures, 4. Personal protection</i>
Filling / preparation of equipment from drums or containers. [CS45].	Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. [E1]. Avoid carrying out operation for more than 1 hour [OC11]., or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].

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Automated process with (semi) closed systems. [CS93]. Use in contained systems [CS38].	Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Automated process with (semi) closed systems. [CS93]. Drum/batch transfers [CS8]. Use in contained systems [CS38].	Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Semi Automated process. (e.g.: Semi automatic application of floor care and maintenance products) [CS76].	Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. [E1]. Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Filling / preparation of equipment from drums or containers. [CS45].	Ensure operation is undertaken outdoors [E69]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Manual [CS34]. Surfaces [CS48]. Cleaning [CS47]. Dipping, immersion and pouring [CS4].	Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. [E1]. Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Cleaning with low-pressure washers [CS42]. Rolling, Brushing [CS51]. no spraying [CS60].	Limit the substance content in the product to 5 % [OC17]. Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. [E1].
Cleaning with high pressure washers [CS44]. Spraying [CS10]. Indoor [OC8].	Limit the substance content in the product to 1 % [OC16]. Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. [E1].
Cleaning with high pressure washers [CS44]. Spraying [CS10]. Outdoor [OC9].	Limit the substance content in the product to 1 % [OC16]. Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Manual [CS34]. Surfaces [CS48]. Cleaning [CS47]. Spraying [CS10].	Ensure doors and windows are opened [E72]. Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Ad hoc manual application via trigger sprays, dipping, etc. [CS27]. Rolling, Brushing [CS51].	Limit the substance content in the product to 25 % [OC18]. Provide extract ventilation to points where emissions occur [E54]. Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.
Ad hoc manual application via trigger sprays, dipping, etc. [CS27]. Rolling, Brushing [CS51].	Limit the substance content in the product to 25 % [OC18]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].

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Application of cleaning products in closed systems [CS101]. Outdoor [OC9].	Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Cleaning of medical devices [CS74].	Provide extract ventilation to points where emissions occur [E54]. Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22].
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.8.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.8 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.8.2 Exposure Estimation

1) 9.8.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 8.

2) 9.8.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(j) 9.9 Uses in Cleaning Agents – Consumer

(i) 9.9.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Use in Cleaning Agents
Sector of Use (SU code)	21

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Use Descriptor (PC codes)		PC3, PC4, PC8, PC9, PC24, PC35, PC38. Note PC8 included based upon indication this will be changed from Coatings to Cleanings in future.
Processes, tasks, activities covered		Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, de-icers, lubricants and air care products.
Environmental Release Category		ERC 8a, 8d
Specific Environmental Release Category		
Section 2		Operational conditions and risk management measures
Section 2.1		Control of consumer exposure
<i>Product characteristics</i>		
Physical form of product		liquid
Vapour pressure		12600 Pa
Concentration of substance in product		Unless otherwise stated, cover concentrations up to 50% [ConsOC1]
<i>Amounts used</i>		Unless otherwise stated, covers use amounts up to 13800g [ConsOC2]; covers skin contact area up to 857.5cm ² [ConsOC5]
<i>Frequency and duration of use/exposure</i>		Unless otherwise stated, covers use frequency up to 0.35 times per day [ConsOC4]; covers exposure up to 2.2 hours per event [ConsOC14]
<i>Other Operational Conditions affecting exposure</i>		Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m ³ room [ConsOC11]; assumes use with typical ventilation [ConsOC8].
Section 2.1.1		Product categories
PC9a:Coatings and paints, fillers putties, thinners--Solvent rich, high solid, water borne paint	OC	Unless otherwise stated, covers concentrations up to 27.5% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm ² [ConsOC5]; for each use event, covers use amounts up to 744g [ConsOC2]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
Solvent rich, high solid, water borne paint--Tier 2: ConsExpo estimates	OC	0
	RMM	
PC9a:Coatings and paints, fillers putties, thinners--Aerosol spray can	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 2 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 215g [ConsOC2]; Covers use in a one car garage (34m ³) under typical ventilation [ConsOC10]; covers use in room size of 34m ³ [ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated

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Aerosol spray can --Tier 2: ConsExpo estimates	OC		0
	RMM		
PC9a:Coatings and paints, fillers putties, thinners-- Removers (paint-, glue-, wall paper-, sealant-remover)	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 3 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm ² [ConsOC5]; for each use event, covers use amounts up to 491g [ConsOC2]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
Removers (paint-, glue-, wall paper-, sealant-remover)--Tier 2: ConsExpo estimates	OC		0
	RMM		
PC9b:Fillers, putties, plasters, modeling clay--Plasters and floor equalizers	OC	Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm ² [ConsOC5]; for each use event, covers use amounts up to 13800g [ConsOC2]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
Plasters and floor equalizers-- Tier 2: ConsExpo estimates	OC		0
	RMM		
PC24: Lubricants, greases, and release products--Liquids	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m ³) under typical ventilation [ConsOC10]; covers use in room size of 34m ³ [ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
Liquids--Tier 2: skin permeability for dermall- if go this route and RCR still >1, select the set of DNEL band conditions from Tier1 that will provide RCR<1	OC		0
	RMM		
PC24: Lubricants, greases, and release products--Pastes	OC	Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 10 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 34g [ConsOC2]; covers use in room size of 20m ³ [ConsOC11];	
	RMM	No specific RMMs identified beyond those OCs stated	

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PC24: Lubricants, greases, and release products--Sprays	OC	Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm ² [ConsOC5]; for each use event, covers use amounts up to 73g [ConsOC2]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC35:Washing and cleaning products (including solvent based products)--Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)	OC	Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 128 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm ² [ConsOC5]; for each use event, covers use amounts up to 27g [ConsOC2]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC35:Washing and cleaning products (including solvent based products)--Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	OC	Unless otherwise stated, covers concentrations up to 15% [ConsOC1]; covers use up to 128 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
Section 2.2		Control of environmental exposure - these can be hidden or removed in this consumer GES
		No exposure assessment presented for the environment. [G40]
Section 3		Exposure Estimation
3.1. Health		
Health sub-headings		Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented.
Section 4		Guidance to check compliance with the Exposure Scenario
4.1. Health		
Health sub-headings		The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.9.

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These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.9 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.9.2 Exposure Estimation

1) 9.9.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 9.

2) 9.9.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(k) 9.10 Lubricants – Industrial

(i) 9.10.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Lubricants, (Methyl ethyl ketone, CAS 78-93-3)
Sector of Use	Industrial (SU3)
Process Category	PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17, PROC18
Article Category	
Environmental Release Category	ERC7, ERC4
Processes, tasks, activities covered	Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100% [G13]
Amounts used	not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	
Operational Conditions	Risk management measures
General exposures (closed systems) [CS15]	Handle substance within a closed system E47 No other specific measures identified EI20,

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General exposures (open systems) [CS16]	Handle substance within a closed system E47 No other specific measures identified EI20,
Bulk Transfers [CS14]	No specific measures identified EI18,
Filling / preparation of equipment from drums or containers. [CS45]	Transfer via enclosed lines E52, Use drum pumps or carefully pour from container E64
Initial factory fill of equipment [CS75]	Ensure material transfers are under containment or extract ventilation. E66
Operation and lubrication of high energy open equipment [CS17]	Restrict area of openings to equipment E68,
Manual roller application or brushing [CS13]	Provide a good standard of controlled ventilation (10 to 15 air changes per hour). E40.
Treatment by dipping and pouring [CS35]	Restrict area of openings to equipment E66.
Spraying [CS10]	Minimise exposure by enclosing the operation or equipment and provide extract ventilation at openings E60
Maintenance (of larger plant items) and machine set up [CS77]	Provide extract ventilation to emission points when contact with warm (>50oC) lubricant is likely) E67 Wear suitable gloves (tested to EN374) PPE15
Maintenance of small items [CS18]	Avoid carrying out operation for more than 4 hours OC12, No other specific measures identified EI20
Remanufacture of reject articles [CS19]	Avoid carrying out operation for more than 4 hours OC12, No other specific measures identified EI20
Storage [CS67]	No specific measures identified EI18,
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	
Health sub-headings	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Health sub-headings	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

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Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.10.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.10 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.10.2 Exposure Estimation

1) 9.10.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 10.

2) 9.10.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(I) 9.11 Lubricants – Consumer

(i) 9.11.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Lubricants
Sector of Use (SU code)	21
Use Descriptor (PC codes)	PC1, PC24, PC31
Processes, tasks, activities covered	Covers the consumer use of formulated lubricants in closed and open systems including transfer operations, application, operation of engines and similar articles, equipment maintenance and disposal of waste oil.
Environmental Release Category	ERC 8a, 8d, 9a, 9b
Specific Environmental Release Category	
Section 2	Operational conditions and risk management measures
Section 2.1	Control of consumer exposure
<i>Product characteristics</i>	
Physical form of product	liquid
Vapour pressure	12600 Pa
Concentration of substance in product	Unless otherwise stated, cover concentrations up to 100% [ConsOC1]
<i>Amounts used</i>	Unless otherwise stated, covers use amounts up to 6390g [ConsOC2]; covers skin contact area up to 468cm ² [ConsOC5]
<i>Frequency and duration of use/exposure</i>	Unless otherwise stated, covers use frequency up to 1 times per day [ConsOC4]; covers exposure up to 6 hours per event [ConsOC14]

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<i>Other Operational Conditions affecting exposure</i>		Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m ³ room [ConsOC11]; assumes use with typical ventilation [ConsOC8].
Section 2.1.1		Product categories
PC1:Adhesives, sealants--Glues, hobby use	OC	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm ² [ConsOC5]; for each use event, covers use amounts up to 9g [ConsOC2]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC1:Adhesives, sealants--Glues DIY-use (carpet glue, tile glue, wood parquet glue)	OC	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 1 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 110.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 6390g [ConsOC2]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 6.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC1:Adhesives, sealants--Glue from spray	OC	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm ² [ConsOC5]; for each use event, covers use amounts up to 85.05g [ConsOC2]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC1:Adhesives, sealants--Sealants	OC	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm ² [ConsOC5]; for each use event, covers use amounts up to 75g [ConsOC2]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 1.00hr/event[ConsOC14];
	RMM	Avoid using at a product concentration greater than 25% [ConsRMM1]; Avoid using when windows closed [ConsRMM8];
PC24: Lubricants, greases, and release products--Liquids	OC	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m ³) under typical ventilation [ConsOC10]; covers use in room size of 34m ³ [ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated

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Liquids--Tier 2: skin permeability for dermall- if go this route and RCR still >1, select the set of DNEL band conditions from Tier1 that will provide RCR<1	OC		0
	RMM		
PC24: Lubricants, greases, and release products--Pastes	OC	Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 10 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 34g [ConsOC2]; covers use in room size of 20m3[ConsOC11];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC24: Lubricants, greases, and release products--Sprays	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 73g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC31:Polishes and wax blends--Polishes, wax / cream (floor, furniture, shoes)	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 29 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 142g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 1.23hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
PC31:Polishes and wax blends--Polishes, spray (furniture, shoes)	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 8 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];	
	RMM	No specific RMMs identified beyond those OCs stated	
Section 2.2		Control of environmental exposure - these can be hidden or removed in this consumer GES	
		No exposure assessment presented for the environment. [G40]	
Section 3		Exposure Estimation	
3.1. Health			
Health sub-headings		Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are	

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		implemented.
Section 4		Guidance to check compliance with the Exposure Scenario
4.1. Health		
Health sub-headings		The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.11.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.11 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.11.2 Exposure Estimation

1) 9.11.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 11.

2) 9.11.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(m)9.12 Metal Working Fluids – Industrial

(i) 9.12.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Metal Working Fluids, (Methyl ethyl ketone, CAS 78-93-3)
Sector of Use	Industrial (SU3)
Process Category	PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17
Article Category	
Environmental Release Category	ERC4
Processes, tasks, activities covered	Covers the use in formulated MWFs/rolling oils including transfer operations, rolling and annealing activities, cutting/machining activities, automated and manual application of corrosion protections (including brushing, dipping and spraying), equipment maintenance, draining and disposal of waste oils.
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	

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Physical form of product	Liquid
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100% [G13]
Amounts used	not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	
Operational Conditions	Risk management measures
General exposures (Closed systems) [CS15]	Handle substance within a closed system E47,
General exposures (Open systems) [CS16]	No specific measures identified EI18.
Bulk transfers [CS14]	Provide enhanced general ventilation by mechanical means. E48, Or G9 Ensure operation is undertaken outdoors E69, Avoid carrying out operation for more than 1 hour OC11, Clear transfer lines prior to decoupling E39
Filling preparation of equipment from drums or containers [CS45]	Use drum pumps or carefully pour from container E64
Process sampling [CS2].	Use dedicated equipment E85
Metal Machining Operations [CS79]	Provide extract ventilation to points where emissions occur E54. Restrict area of openings to equipment E68
Treatment of articles by dipping and pouring [CS35]	Provide enhanced general ventilation by mechanical means. E48
Spraying [CS10]	Minimise exposure by enclosing the operation or equipment and provide extract ventilation at openings E60
Manual roller application or brushing [CS13]	Provide enhanced general ventilation by mechanical means. E48
Automated metal rolling/forming [CS80]	Handle substance within a predominantly closed system provided with extract ventilation E49 Provide extract ventilation to points where emissions occur E54
Semi-automated metal rolling/forming [CS83]	Minimise exposure by enclosing the operation or equipment and provide extract ventilation at openings E60
Equipment cleaning and maintenance [CS39] dedicated facility [CS81]	No specific measures identified EI18,
Equipment cleaning and maintenance [CS39] non-dedicated facility [CS82]	Provide enhanced general ventilation by mechanical means. E48 Drain down system prior to equipment break-in or maintenance E81.
Material Storage CS67	Store substance within a closed system. E84 Transfer via enclosed lines. E52

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Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	
Health sub-headings	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Health sub-headings	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.12.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.12 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.12.2 Exposure Estimation

1) 9.12.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 12.

2) 9.12.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(n) 9.13 Use as Binders and Release Agents – Industrial

(i) 9.13.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Use as binders and release agents, (Methyl ethyl ketone, CAS 78-93-3)
Sector of Use	Industrial (SU3)
Process Category	PROC1, PROC2, PROC3, PROC4, PROC6, PROC7, PROC8b, PROC 10, PROC 13, PROC14
Article Category	
Environmental Release Category	ERC4
Processes, tasks, activities covered	Covers the use as binders and release agents including material transfers, mixing, application by spraying, brushing, and handling of waste.

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Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100% [G13]
Amounts used	not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	
Operational Conditions	Risk management measures
Material transfers [CS3]	Handle substance within a closed system E40, Enclosed transfers, E52,
Drum/batch transfers [CS8]	Direct transfers E45 , No other specific measures identified EI20
Mixing operations (closed systems) [CS29]	Handle substance within a closed system E40, No other specific measures identified EI20
Mixing operations (open systems) [CS30]	No specific measures identified EI18
Mold forming [CS31]	Provide extract ventilation to points where emissions occur E54,
Casting operations [CS32], (open systems) [CS108]	Provide extract ventilation to points where emissions occur E54 Use RPE when casting PPE22
Spraying [CS10], Machine [CS33]	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings E60
Rolling, Brushing [CS51]	Provide extract ventilation to points where emissions occur E54
Spraying [CS10], Manual [CS34]	Carry out in a vented booth or extracted enclosure E57
Storage [CS67]	Store substance within a closed system E84
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	
Health sub-headings	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	

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Health sub-headings	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23
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Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.13.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.13 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.13.2 Exposure Estimation

1) 9.13.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 13.

2) 9.13.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(o) 9.14 Use as Binders and Release Agents – Professional

(i) 9.14.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Use as binders and release agents, (Methyl ethyl ketone, CAS 78-93-3)
Sector of Use	Professional (SU22)
Process Category	PROC1, PROC2, PROC3, PROC4, PROC6, PROC8a, PROC8b, PROC10, PROC11, PROC14
Article Category	
Environmental Release Category	ERC8a, ERC8d
Processes, tasks, activities covered	Covers the use as binders and release agents including material transfers, mixing, application by spraying, brushing, and handling of waste.
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100% [G13]
Amounts used	not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	not applicable

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Other Operational Conditions affecting worker exposure	
Operational Conditions	Risk management measures
Material transfers [CS3], (closed systems) [CS107]	Transfer via enclosed lines E52, No other specific measures identified, EI20
Drum/batch transfers [CS8]	Use drum pumps E53 No other specific measures identified, EI20
Mixing operations (open systems) [CS30]	Handle substance within a closed system E47, No other specific measures identified, EI20
Mixing operations (closed systems) [CS29]	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings E60
Mold forming [CS31]	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings E60
Casting operations [CS32], (open systems) [CS108]	Apply extract ventilation to emissions E54
Spraying [CS10], Machine [CS33]	Minimise exposure by extracted full enclosure for the operation or equipment . E61
[CS13]	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings E60
Spraying [CS10], Manual [CS34]	Carry out in a vented booth or extracted enclosure E57
Batch process [CS55]	Store substance within a closed system. E84
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	
Health sub-headings	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Health sub-headings	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

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Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.14.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.14 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.14.2 Exposure Estimation

1) 9.14.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 14.

2) 9.14.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(p) 9.15 Use in Agrochemicals – Professional

(i) 9.15.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Use in Agrochemicals, (Methyl ethyl ketone, CAS 78-93-3)
Sector of Use	Professional (SU22)
Process Category	PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC 11, PROC 13
Article Category	
Environmental Release Category	ERC8a, ERC 8d
Processes, tasks, activities covered	Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging; including equipment clean-downs and disposal.
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100% [G13]
Amounts used	not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	
Operational Conditions	Risk management measures

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Transfer from/pouring from containers [CS22]	Ensure operation is undertaken outdoors E69
[CS23]	Ensure operation is undertaken outdoors E69
Spraying/fogging by manual application [CS24]	Wear a full face respirator conforming to EN140 with Type A filter or better.. PPE24
Spraying/fogging by machine application [CS25]	Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20 E70
Ad hoc manual application via trigger sprays, dipping, etc. [CS27]	Ensure operation is undertaken outdoors E69, Wear chemically resistant gloves (tested to EN374) PPE15, Wear a respirator conforming to EN140 with Type A filter or better. PPE22,
Operation of equipment containing engine oils and similar [CS26]	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. PPE16, Avoid carrying out operation for more than 1 hour OC11, Limit the substance content in the product to 25 % OC18,
Disposal of wastes [CS28]	Ensure operation is undertaken outdoors E69 Wear chemically resistant gloves (tested to EN374) PPE15, Avoid carrying out operation for more than 1 hour OC11, Limit the substance content in the product to 25 % OC18
Storage [CS67]	Store substance within a closed system. E84
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	
Health sub-headings	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Health sub-headings	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.15.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.15 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

9.15.2 Exposure Estimation

1) 9.15.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 15.

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2) 9.15.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(q) 9.16 Use in Agrochemicals – Consumer

(i) 9.16.1 Exposure Scenario

Section 1		Exposure Scenario Title
Title		Agrochemicals
Sector of Use (SU code)		21
Use Descriptor (PC codes)		PC12, PC27
Processes, tasks, activities covered		Covers the consumer use in agrochemicals in liquid and solid forms.
Environmental Release Category		ERC 8a, 8d
Specific Environmental Release Category		
Section 2		Operational conditions and risk management measures
Section 2.1		Control of consumer exposure
<i>Product characteristics</i>		
Physical form of product		liquid
Vapour pressure		12600 Pa
Concentration of substance in product		Unless otherwise stated, cover concentrations up to 4% [ConsOC1]
<i>Amounts used</i>		Unless otherwise stated, covers use amounts up to 50g [ConsOC2]; covers skin contact area up to 857.5cm ² [ConsOC5]
<i>Frequency and duration of use/exposure</i>		Unless otherwise stated, covers use frequency up to 1 times per day [ConsOC4]; covers exposure up to 0.5 hours per event [ConsOC14]
<i>Other Operational Conditions affecting exposure</i>		Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m ³ room [ConsOC11]; assumes use with typical ventilation [ConsOC8].
Section 2.1.1		Product categories
PC12:Fertilizers--Lawn and garden preparations	OC	Unless otherwise stated, covers concentrations up to 4% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm ² [ConsOC5]; for each use event, assumes swallowed amount of 0.3g [ConsOC13]; for each use event, covers use amounts up to 50g [ConsOC2]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 0.50hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated

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PC27_n: Plant protection products--	OC	Unless otherwise stated, covers concentrations up to 4% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, assumes swallowed amount of 0.3g [ConsOC13]; for each use event, covers use amounts up to 50g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.50hr/event[ConsOC14];
	RMM	Avoid using at a product concentration greater than 2.5% [ConsRMM1];
Section 2.2		Control of environmental exposure - these can be hidden or removed in this consumer GES
		No exposure assessment presented for the environment. [G40]
Section 3		Exposure Estimation
3.1. Health		
Health sub-headings		Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented.
Section 4		Guidance to check compliance with the Exposure Scenario
4.1. Health		
Health sub-headings		The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.16.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.16 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.16.2 Exposure Estimation

1) 9.16.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 16.

2) 9.16.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

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(r) 9.17 Use as a Fuel – Industrial

(i) 9.17.1 Exposure Scenario

Section 1		Exposure Scenario Title	
Title	Use as a fuel, (Methyl ethyl ketone, CAS 78-93-3)		
Sector of Use	Industrial (SU3)		
Process Category	PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16		
Article Category			
Environmental Release Category	ERC7		
Processes, tasks, activities covered	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.		
Section 2		Operational conditions and risk management measures	
Section 2.1		Control of worker exposure	
Product characteristics			
Physical form of product	Liquid		
Vapour pressure	12600 Pa		
Concentration of substance in product	Covers percentage substance in the product up to 100% [G13]		
Amounts used	not applicable		
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]		
Human factors not influenced by risk management	not applicable		
Other Operational Conditions affecting worker exposure			
Operational Conditions		Risk management measures	
Bulk transfers [CS14]	Handle substance within a closed system E47, Clear lines prior to decoupling E39		
Drum/batch transfers [CS8]	Use drum pumps or carefully pour from container. E64		
General exposures (closed systems) [CS15]	Handle substance within a closed system E47, No other specific measures identified EI20		
General exposures (open systems) [CS16], (closed systems) [CS107]	Handle substance within a closed system E47. No other specific measures identified EI20		
Equipment cleaning and maintenance [CS39]	Apply vessel entry procedures including use of forced supplied air. AP15 Drain down and flush system prior to equipment break-in or maintenance. E55		
Vessel and container cleaning [CS103]	Apply vessel entry procedures including use of forced supplied air. AP15 Drain down system prior to equipment break-in or maintenance. E65		
Storage [CS67]	Store substance within a closed system. E84 Transfer via enclosed lines. E52 Ensure operation is undertaken outdoors E69		
Section 2.2		Control of environmental exposure	

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	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	
Health sub-headings	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Health sub-headings	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.17.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.17 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.17.2 Exposure Estimation

1) 9.17.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 17

2) 9.17.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(s) 9.18 Use as a Fuel – Professional

(i) 9.18.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Use as a fuel, (Methyl ethyl ketone, CAS 78-93-3)
Sector of Use	Professional (SU22)
Process Category	PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16
Article Category	
Environmental Release Category	ERC9a, ERC9b
Processes, tasks, activities covered	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Section 2	Operational conditions and risk management measures

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Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100% [G13]
Amounts used	not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	
Operational Conditions	Risk management measures
Bulk transfers [CS14]	Handle substance within a closed system. E47 Clear lines prior to decoupling. E39
Drum/batch transfers [CS8]	Use drum pumps or carefully pour from container E64, Avoid spillage when withdrawing pump C&H16
refuelling [CS-I] concawe??	Use drum pumps or carefully pour from container. E64 , Avoid spillage when withdrawing pump C&H16
General exposures (closed systems) [CS15]	Handle substance within a closed system E47 No other specific measures identified EI20
General exposures (open systems) [CS16], (closed systems) [CS107]	Handle substance within a closed system E47 No other specific measures identified EI20
Equipment cleaning and maintenance [CS39]	Drain down and flush system prior to equipment break-in or maintenance. E55, Retain drain downs in sealed storage pending disposal or for subsequent recycle. ENVT4 ,
Vessel and container cleaning [CS103]	Apply vessel entry procedures including use of forced supplied air AP15, Drain down system prior to equipment break-in or maintenance E65, Retain drain downs in sealed storage pending disposal or for subsequent recycle ENVT4 ,
Storage [CS67]	Store substance within a closed system E84, Transfer via enclosed lines. E52, Ensure operation is undertaken outdoors E69
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	
Health sub-headings	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Health sub-headings	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21

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	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23
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Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.18.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.18 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.18.2 Exposure Estimation

1) 9.18.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 18

2) 9.18.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(t) 9.19 Use as a Fuel – Consumer

(i) 9.19.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Use as a Fuel, consumer
Sector of Use (SU code)	21
Use Descriptor (PC codes)	PC13
Processes, tasks, activities covered	Covers consumer uses in liquid fuels
Environmental Release Category	ERC 9a 9b
Specific Environmental Release Category	
Section 2	Operational conditions and risk management measures
Section 2.1	Control of consumer exposure
<i>Product characteristics</i>	
Physical form of product	liquid
Vapour pressure	12600 Pa
Concentration of substance in product	Unless otherwise stated, cover concentrations up to 100% [ConsOC1]
<i>Amounts used</i>	Unless otherwise stated, covers use amounts up to 37500g [ConsOC2]; covers skin contact area up to 420cm ² [ConsOC5]

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<i>Frequency and duration of use/exposure</i>		Unless otherwise stated, covers use frequency up to 0.143 times per day [ConsOC4]; covers exposure up to 2 hours per event [ConsOC14]
<i>Other Operational Conditions affecting exposure</i>		Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m ³ room [ConsOC11]; assumes use with typical ventilation [ConsOC8].
Section 2.1.1		Product categories
PC13:Fuels--Liquid - subcategories added: Automotive Refuelling	OC	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 52 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 210.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 37500g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100m ³ [ConsOC11]; for each use event, covers exposure up to 0.05hr/event[ConsOC14];
	RMM	No specific RMMs developed beyond those OCs stated
Liquid - subcategories added: Automotive Refuelling--Tier 2: inhalation measured data and Tier 2 dermal	OC	0
	RMM	
PC13:Fuels--Liquid - subcategories added: Scooter Refuelling	OC	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 52 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 210.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 3750g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100m ³ [ConsOC11]; for each use event, covers exposure up to 0.03hr/event[ConsOC14];
	RMM	No specific RMMs developed beyond those OCs stated
Liquid - subcategories added: Scooter Refuelling--Tier 2: inhalation measured data and Tier 2 dermal: used same as vehicle refueling	OC	0
	RMM	
PC13:Fuels--Liquid - subcategories added: Garden Equipment - Use	OC	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 26 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 750g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100m ³ [ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];
	RMM	No specific RMMs developed beyond those OCs stated
Liquid - subcategories added: Garden Equipment - Use--Tier 2: inhalation measured data	OC	0
	RMM	

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PC13:Fuels--Liquid (subcategories added): Garden Equipment - Refueling	OC	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 26 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 420.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 750g [ConsOC2]; Covers use in a one car garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.03hr/event[ConsOC14];
	RMM	No specific RMMs developed beyond those OCs stated
Liquid (subcategories added): Garden Equipment - Refueling-- Tier 2: inhalation measured data and dermal modeled	OC	0
	RMM	
PC13:Fuels--Liquid - subcategories added: Lamp oil	OC	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 52 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 210.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 100g [ConsOC2]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.01hr/event[ConsOC14];
	RMM	No specific RMMs developed beyond those OCs stated
Section 2.2		Control of environmental exposure - these can be hidden or removed in this consumer GES
		No exposure assessment presented for the environment. [G40]
Section 3		Exposure Estimation
3.1. Health		
Health sub-headings		Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented.
Section 4		Guidance to check compliance with the Exposure Scenario
4.1. Health		
Health sub-headings		The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.19.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.19 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

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(ii) 9.19.2 Exposure Estimation

1) 9.19.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 19.

2) 9.19.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(u) 9.20 Functional Fluids – Consumer

(i) 9.20.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Functional Fluids
Sector of Use (SU code)	21
Use Descriptor (PC codes)	PC16, PC17
Processes, tasks, activities covered	Use of sealed items containing functional fluids e.g. transfer oils, hydraulic fluids, refrigerants
Environmental Release Category	ERC 9a, 9b
Specific Environmental Release Category	
Section 2	Operational conditions and risk management measures
Section 2.1	Control of consumer exposure
<i>Product characteristics</i>	
Physical form of product	liquid
Vapour pressure	12600 Pa
Concentration of substance in product	Unless otherwise stated, cover concentrations up to 100% [ConsOC1]
<i>Amounts used</i>	Unless otherwise stated, covers use amounts up to 2200g [ConsOC2]; covers skin contact area up to 468cm ² [ConsOC5]
<i>Frequency and duration of use/exposure</i>	Unless otherwise stated, covers use frequency up to 0.010958904109589 times per day [ConsOC4]; covers exposure up to 0.16 hours per event [ConsOC14]
<i>Other Operational Conditions affecting exposure</i>	Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m ³ room [ConsOC11]; assumes use with typical ventilation [ConsOC8].
Section 2.1.1	Product categories

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PC16_n: Heat transfer fluids-- Liquids	OC	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m ³) under typical ventilation [ConsOC10]; covers use in room size of 34m ³ [ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
Liquids--Tier 2: skin permeability for dermal- if go this route and RCR still >1, select the set of DNEL band conditions from Tier1 that will provide RCR<1	OC	0
	RMM	
PC17_n: Hydraulic fluids-- Liquids	OC	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m ³) under typical ventilation [ConsOC10]; covers use in room size of 34m ³ [ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
Liquids--Tier 2: skin permeability for dermal- if go this route and RCR still >1, select the set of DNEL band conditions from Tier1 that will provide RCR<1	OC	0
	RMM	
Section 2.2		Control of environmental exposure - these can be hidden or removed in this consumer GES
		No exposure assessment presented for the environment. [G40]
Section 3		Exposure Estimation
3.1. Health		
Health sub-headings		Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented.
Section 4		Guidance to check compliance with the Exposure Scenario
4.1. Health		
Health sub-headings		The ECETOC TRA tool has been used to estimate

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		workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23
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Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.20.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.20 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.20.2 Exposure Estimation

1) 9.20.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 20.

2) 9.20.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(v) 9.21 Road and Construction Applications – Professional

(i) 9.21.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Road and construction applications, (secondary Butyl Alcohol, CAS 78-92-2)
Sector of Use	Professional (SU22)
Process Category	PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13
Article Category	
Environmental Release Category	ERC8d, ERC8f
Processes, tasks, activities covered	Application of surface coatings and binders in road and construction activities, including paving uses, manual mastic and in the application of roofing and water-proofing membranes
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100% [G13]
Amounts used	not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	not applicable

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Other Operational Conditions affecting worker exposure	
Operational Conditions	Risk management measures
Drum/batch transfers [CS8], Non-dedicated facility [CS82]	Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely (PPE21).
Drum/batch transfers [CS8], Dedicated facility [CS81]	Use dedicated equipment (E85). Clear transfer lines prior to de-coupling (E39). Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely (PPE21).
Rolling, Brushing[CS51]	Ensure operation is undertaken outdoors (E69). Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely (PPE21).
Spraying/fogging by machine application [CS25]	Ensure operation is undertaken outdoors (E69). Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely (PPE21).
Dipping, immersion and pouring [CS4]	Ensure operation is undertaken outdoors (E69). Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely (PPE21). Wear suitable gloves tested to EN374.
Equipment cleaning and maintenance [CS39]	Ensure operation is undertaken outdoors (E69). Wear suitable gloves tested to EN374 (PPE15). Avoid carrying out operation for more than 1 hour OC11. Retain drain downs in sealed storage pending disposal or for subsequent recycle (ENV4).
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	
Health sub-headings	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Health sub-headings	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.21.

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These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.21 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.21.2 Exposure Estimation

1) 9.21.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 21.

2) 9.21.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(w) 9.22 Use in Laboratories – Industrial

(i) 9.22.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Use in laboratories, (Methyl ethyl ketone, CAS 78-93-3)
Sector of Use	Industrial (SU3)
Process Category	PROC10, PROC15
Article Category	
Environmental Release Category	ERC2, ERC4
Processes, tasks, activities covered	Use of the substance within laboratory settings, including material transfers and equipment cleaning
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100% [G13]
Amounts used	not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	
Operational Conditions	Risk management measures
Laboratory activities [CS36]	No specific measures identified E118, Ensure ventilation system is regularly maintained and tested E74,
Cleaning [CS47]	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) E40, Ensure ventilation system is regularly maintained and tested

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	E74
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	
Health sub-headings	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Health sub-headings	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.22.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.22 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.22.2 Exposure Estimation

1) 9.22.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 22.

2) 9.22.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(x) 9.23 Use in Laboratories – Professional

(i) 9.23.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Use in laboratories, (Methyl ethyl ketone, CAS 78-93-3)
Sector of Use	Professional (SU22)
Process Category	PROC10, PROC15
Article Category	
Environmental Release Category	ERC8a
Processes, tasks, activities	Use of small quantities within laboratory settings, including material transfers and equipment cleaning

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covered	
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100% [G13]
Amounts used	not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	
Operational Conditions	Risk management measures
Laboratory activities [CS36]	No specific measures identified E118, Ensure ventilation system is regularly maintained and tested E74,
Cleaning [CS47]	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) E40, Avoid carrying out operation for more than 1 hour OC11, Ensure ventilation system is regularly maintained and tested E74,
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	
Health sub-headings	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Health sub-headings	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.23.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.23 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.23.2 Exposure Estimation

1) 9.23.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when

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there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 23.

2) 9.23.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(y) 9.24 Explosives Manufacture and Use – Professional

(i) 9.24.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Explosives manufacture & use, (methyl ethyl ketone, CAS 78-93-3)
Sector of Use	Professional (SU22)
Process Category	PROC1, PROC3, PROC5, PROC8a, PROC8b
Article Category	
Environmental Release Category	ERC8e
Processes, tasks, activities covered	Covers exposures arising from the manufacture and use of slurry explosives (including materials transfer, mixing and charging) and equipment cleaning
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100% [G13]
Amounts used	not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	
Operational Conditions	Risk management measures
Bulk transfers [CS14]	Handle substance within a closed system. E66
Drum/batch transfers [CS8]	Use drum pumps E53, No other specific measures identified EI20,
Mixing operations (closed systems) [CS29]	No specific measures identified EI18,
Mixing operations (open systems) [CS30]	Provide enhanced general ventilation by mechanical means E48,
Material transfers [CS3]	Avoid carrying out operation for more than 1 hour OC11

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Transfer from/pouring from containers [CS22], Non-dedicated facility [CS82]	Use drum pumps E53
Operation of equipment containing engine oils and similar [CS26]	Drain down system prior to equipment break-in or maintenance E65
Equipment maintenance [CS5]	Drain down system prior to equipment break-in or maintenance E65,
Storage [CS67]	Store substance within a closed system. E84 Ensure operation is undertaken outdoors E69
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	
Health sub-headings	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Health sub-headings	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.24.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.24 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.24.2 Exposure Estimation

1) 9.24.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 24.

2) 9.24.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

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(z) 9.25 Polymer Processing - Industrial

(i) 9.25.1 Exposure Scenario

Section 1		Exposure Scenario Title	
Title	Polymer Processing, (Methyl ethyl ketone, CAS 78-93-3)		
Sector of Use	Industrial (SU3)		
Process Category	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC13, PROC14, PROC21		
Article Category			
Environmental Release Category	ERC4		
Processes, tasks, activities covered	Processing of formulated polymers including material transfers, additives handling (e.g. pigments, stabilisers, fillers, plasticisers, etc.), moulding, curing and forming activities, material re-works, storage and associated maintenance.		
Section 2		Operational conditions and risk management measures	
Section 2.1		Control of worker exposure	
Product characteristics			
Physical form of product	Liquid		
Vapour pressure	12600 Pa		
Concentration of substance in product	Covers percentage substance in the product up to 100% [G13]		
Amounts used	not applicable		
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]		
Human factors not influenced by risk management	not applicable		
Other Operational Conditions affecting worker exposure			
Operational Conditions		Risk management measures	
Bulk transfers [CS14], (closed systems) [CS107]	No specific measures identified EI18		
Bulk transfers [CS14]	No specific measures identified EI18		
Bulk weighing [CS91]	No specific measures identified EI18		
Small scale weighing [CS90]	Ensure material transfers are under containment or extract ventilation E66		
Additive premixing [CS92]	Ensure material transfers are under containment or extract ventilation E66, No other specific measures identified EI20		
Calendering (including Banburys) [CS64]	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) E40		
Production of articles by dipping and pouring [CS113]	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) E40,		
Extrusion and masterbatching [CS88]	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) E40,		

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Injection moulding of articles [CS89]	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) E40,
Finishing operations [CS102]	No specific measures identified EI18
Equipment maintenance [CS5]	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) E40,
Storage [CS67]	Store substance within a closed system. E84
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	
Health sub-headings	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Health sub-headings	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.25.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.25 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.25.2 Exposure Estimation

1) 9.25.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 25

2) 9.25.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(aa) 9.26 Water Treatment - Industrial

(i) 9.26.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Water Treatment Chemicals, (Methyl ethyl ketone, CAS 78-93-3)
Sector of Use	Industrial (SU3)

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Process Category	PROC1, PROC2, PROC3, PROC4, PROC8A, PROC8B, PROC13
Article Category	
Environmental Release Category	ERC3
Processes, tasks, activities covered	Covers the use of the substance for the treatment of water at industrial facilities in open and closed systems.
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100% [G13]
Amounts used	not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	
Operational Conditions	Risk management measures
Bulk Transfers [CS14]	No specific measures identified EI18,
Drum/batch transfers [CS8]	Use drum pumps.E53 No other specific measures identified EI20,
General exposures (closed systems) [CS15]	No specific measures identified EI18,
General exposures (open systems) [CS16]	Transfer via enclosed lines E52, No other specific measures identified EI20,
Pouring from small containers [CS9]	Provide extract ventilation to points where emissions occur E54
Equipment maintenance [CS5]	Drain down system prior to equipment break-in or maintenance. E81
Storage [CS67]	Store substance within a closed system E84, No other specific measures identified EI20,
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]
Section 3	Exposure Estimation
3.1. Health	
Health sub-headings	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	

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Health sub-headings	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23
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Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.26.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.26 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.26.2 Exposure Estimation

1) 9.26.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 26

2) 9.26.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(bb) 9.27 Water Treatment - Professional

(i) 9.27.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	Water Treatment Chemicals, (Methyl ethyl ketone, CAS 78-93-3)
Sector of Use	Professional (SU22)
Process Category	PROC1, PROC2, PROC3, PROC4, PROC8A, PROC8B, PROC13
Article Category	
Environmental Release Category	ERC8f
Processes, tasks, activities covered	Covers the use of the substance for the treatment of water in open and closed systems
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100% [G13]
Amounts used	not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	not applicable

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Other Operational Conditions affecting worker exposure	
Operational Conditions	Risk management measures
Drum/batch transfers [CS8]	Use drum pumps E53, Avoid spillage when withdrawing pump C&H16,
General exposures (closed systems) [CS15]	No specific measures identified EI18
General exposures (open systems) [CS16]	Transfer via enclosed lines E52, Provide a good standard of controlled ventilation (10 to 15 air changes per hour) E40,
Pouring from small containers [CS9]	Avoid carrying out operation for more than 1 hour OC11, Provide extract ventilation to points where emissions occur E54,
Equipment maintenance [CS5]	Drain or remove substance from equipment prior to break-in or maintenance E81, Provide a good standard of controlled ventilation (10 to 15 air changes per hour) E40,
Storage [CS67]	Store substance within a closed system E84, No other specific measures identified EI20
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40],
Section 3	Exposure Estimation
3.1. Health	
Health sub-headings	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Health sub-headings	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.27.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.27 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.27.2 Exposure Estimation

1) 9.27.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 27

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2) 9.27.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

(cc) 9.28 De-icing and Anti-icing Applications – Professional

(i) 9.28.1 Exposure Scenario

Section 1	Exposure Scenario Title
Title	De-icing and Anti-Icing Applications, (Methyl Ethyl Ketone, CAS 78-93-3)
Sector of Use	Professional (SU22)
Process Category	PROC8b, PROC10, PROC11
Article Category	
Environmental Release Category	ERC8d
Processes, tasks, activities covered	Ice prevention and de-icing of vehicles, aircraft and other equipment by spraying
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	12600 Pa
Concentration of substance in product	Covers percentage substance in the product up to 100% (unless stated differently) [G13]
Amounts used	not applicable
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	not applicable
Other Operational Conditions affecting worker exposure	
Contributing Scenarios	Risk management measures
Bulk transfers [CS14]	Avoid carrying out operation for more than 1 hour OC11, Ensure operation is undertaken outdoors E69, Wear suitable gloves tested to EN374 [PPE15].
Material transfers [CS3]	Avoid carrying out operation for more than 1 hour OC11, Ensure operation is undertaken outdoors E69, Wear suitable gloves tested to EN374 [PPE15].
Spraying/fogging by machine application [CS25]	Avoid carrying out operation for more than 1 hour OC11, Ensure operation is undertaken outdoors E69, Wear suitable gloves tested to EN374 [PPE15]. Limit the substance content in the product to 5 % OC17
Equipment cleaning and maintenance [CS39]	Limit the substance content in the product to 1% OC16, Avoid carrying out operation for more than 4 hours OC12, Wear suitable gloves tested to EN374 [PPE15].
Section 2.2	Control of environmental exposure
	No exposure assessment presented for the environment. [G40]

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Section 3	Exposure Estimation
3.1. Health	
Health sub-headings	Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Health sub-headings	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. G21 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. G23

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out in section 10.28.

These additional measures are presented in the appendix to section 10 and are coded blue. To control risks as described by RCRs presented in section 10.28 only Operational Conditions and Risk Management measures as described in section 2.2 above (coded black in the appendix to section 10) have been taken into account.

(ii) 9.28.2 Exposure Estimation

1) 9.28.2.1 Human Health

The endpoints for which the available data may trigger a qualitative risk characterization includes eye irritation and skin defatting and are described in section 10. This qualitative CSA approach aims to reduce/avoid contact when there is no basis for setting a DNEL or DMEL for a certain human health endpoint, i.e. when the available data for this effect do not provide quantitative dose-response information, but there exist toxicity data of a qualitative nature. Exposure Estimation for all other human health endpoint covered by DNEL or DMEL is performed in context of risk assessment and set in relation to the respective DNEL/DMEL(s) as shown in the Appendix to section 10. Resulting risk characterization ratios (RCR) are presented in section 10, Appendix 1, part 28

2) 9.28.2.2 Environment

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary; however a qualitative risk assessment is provided in section 10.

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