







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

**1.1. Identificateur de produit**

Forme du produit : Mélange  
 Nom : L-acide lactique  
 Nom commercial : PURAC® 50-100  
 PURAC® 80 FG  
 PURAC® 88-LT, 88-T  
 PURAC® FCC 50, FCC 80, FCC 85, FCC 88  
 PURAC® FIT Plus 90  
 PURAC® HiPure 51, HiPure 90  
 PURAC® HS 50, HS 80, HS 88, HS 90, HS 93, HS 95, HS 100  
 PURAC® PF 90  
 PURAC® PH 91  
 PURAC® UltraPure 50, UltraPure 90  
 PURAC® Vin  
 PURAC® DEX 185  
 PURAC® HS Pure 90  
 PURAC® HS Pure 50

**1.2. Utilisations identifiées pertinentes de la substance ou du mélange et utilisations déconseillées**

**1.2.1. Utilisations identifiées pertinentes**

Utilisation de la substance/mélange : Additif alimentaire  
 Chimique spéciaux  
 Voir l'annexe pour de plus amples informations.

**1.2.2. Utilisations déconseillées:**

Restrictions d'emploi : Pas d'informations complémentaires disponibles

**1.3. Renseignements concernant le fournisseur de la fiche de données de sécurité**

**Fournisseur**

Purac Biochem bv  
 Arkelsedijk 46  
 4206 AC Gorinchem  
 T +31 183 695695 - F +31 183 695604  
[sds@corbion.com](mailto:sds@corbion.com)

**1.4. Numéro d'appel d'urgence**

Numéro d'urgence : Call CHEMTREC: +1 703-741-5970 / 1-800-424-9300 CCN 18135

Pays	Organisme/Société	Adresse	Numéro d'urgence	Commentaire
Belgique	Centre Anti-Poisons/Antigifcentrum c/o Hôpital Militaire Reine Astrid	Rue Bruyn 1 1120 Bruxelles/Brussel	+32 70 245 245	Toutes les questions urgentes concernant une intoxication: 070 245 245 (gratuit, 24/7), si pas accessible 02 264 96 30 (tarif normal)

France	ORFILA		+33 1 45 42 59 59	Ce numéro permet d'obtenir les coordonnées de tous les centres Anti-poison Français. Ces centres anti-poison et de toxicovigilance fournissent une aide médicale gratuite (hors coût d'appel), 24 heures sur 24 et 7 jours sur 7.
France	Centre Antipoison et de Toxicovigilance de Paris Hôpital Fernand Widal	200 rue du Faubourg Saint-Denis 75475 Paris Cedex 10	+33 1 40 05 48 48	
Luxembourg	Centre Anti-Poisons/Antigifcentrum c/o Hôpital Central de la Base - Reine Astrid	Rue Bruyn 1 1120 Bruxelles/Brussel	+352 8002 5500	Numéro gratuit avec accès 24/24 et 7/7. Des experts répondent à toutes les questions urgentes sur des produits dangereux en français ou en allemand

## RUBRIQUE 2: Identification des dangers

### 2.1. Classification de la substance ou du mélange

#### Classification selon le règlement (CE) N° 1272/2008 [CLP]

Corrosif/irritant pour la peau, catégorie 1, sous-catégorie 1C H314

Lésions oculaires graves/irritation oculaire, catégorie 1 H318

Texte intégral des mentions H et EUH : voir rubrique 16

#### Effets néfastes physicochimiques, pour la santé humaine et pour l'environnement

Provoque des brûlures de la peau et des lésions oculaires graves.

### 2.2. Éléments d'étiquetage

#### Etiquetage selon le règlement (CE) N° 1272/2008 [CLP]

Pictogrammes de danger (CLP) :



GHS05

Mention d'avertissement (CLP) :

Danger

Contient :

acide L-(+)-lactique

Mentions de danger (CLP) :

H314 - Provoque de graves brûlures de la peau et de graves lésions des yeux.

### Conseils de prudence (CLP)

- : P260 - Ne pas respirer les vapeurs, brouillards.
- P280 - Porter des gants de protection/des vêtements de protection/un équipement de protection des yeux/du visage.
- P301+P330+P331 - EN CAS D'INGESTION: rincer la bouche. NE PAS faire vomir.
- P303+P361+P353 - EN CAS DE CONTACT AVEC LA PEAU (ou les cheveux): Enlever immédiatement tous les vêtements contaminés. Rincer la peau à l'eau/Se doucher.
- 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.
- P363 - Laver les vêtements contaminés avant réutilisation.

### Phrases EUH

- : EUH071 - Corrosif pour les voies respiratoires.

### 2.3. Autres dangers

#### Autres dangers non classés

- : Pas d'informations complémentaires.

Composant	
acide L-(+)-lactique (79-33-4)	Cette substance/mélange ne remplit pas les critères PBT du règlement REACH annexe XIII Cette substance/mélange ne remplit pas les critères vPvB du règlement REACH annexe XIII

Le mélange ne contient pas de substances inscrites sur la liste établie conformément à l'article 59, paragraphe 1, de REACH comme ayant des propriétés perturbant le système endocrinien, ou n'est pas reconnu comme ayant des propriétés perturbant le système endocrinien conformément aux critères définis dans le Règlement délégué (UE) 2017/2100 de la Commission ou le Règlement (UE) 2018/605 de la Commission

## RUBRIQUE 3: Composition/informations sur les composants

### 3.1. Substances

Non applicable

### 3.2. Mélanges

Nom	Identificateur de produit	Conc. (% p/p)	Classification selon le règlement (CE) N° 1272/2008 [CLP]
acide L-(+)-lactique	(N° CAS) 79-33-4 (N° CE) 201-196-2 (N° Index) 607-743-00-5 (N° REACH) 01-2119474164-39-0000; 01-2119474164-39-0013	≥ 50	Skin Corr. 1C, H314 Eye Dam. 1, H318

Texte intégral des mentions H et EUH : voir rubrique 16

## RUBRIQUE 4: Premiers secours

### 4.1. Description des premiers secours

- Premiers soins général : Appeler immédiatement un médecin.
- Premiers soins après inhalation : Transporter la personne à l'extérieur et la maintenir dans une position où elle peut confortablement respirer.
- Premiers soins après contact avec la peau : Enlever immédiatement tous les vêtements contaminés. Rincer la peau à l'eau/se doucher. Appeler immédiatement un médecin.
- Premiers soins après contact oculaire : 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. Appeler immédiatement un médecin.

Premiers soins après ingestion : Rincer la bouche. Ne pas faire vomir. Buvez quelques verres d'eau. Appeler immédiatement un médecin.

#### 4.2. Principaux symptômes et effets, aigus et différés

Symptômes/effets après contact avec la peau : Brûlures. Rougeurs. Douleur.  
 Symptômes/effets après contact oculaire : Sensation de brûlure. Douleur. Rougeur. Larmes.  
 Symptômes/effets après ingestion : Brûlures des muqueuses gastro-intestinales.

#### 4.3. Indication des éventuels soins médicaux immédiats et traitements particuliers nécessaires

Traitement symptomatique. Si la respiration est difficile, administrer de l'oxygène. Surveillez la victime. Des symptômes peuvent apparaître ultérieurement.

### RUBRIQUE 5: Mesures de lutte contre l'incendie

#### 5.1. Moyens d'extinction

Moyens d'extinction appropriés : Eau pulvérisée. Poudre sèche. Mousse. Dioxyde de carbone.  
 Agents d'extinction non appropriés : Ne pas utiliser un jet d'eau concentré, il pourrait disperser et répandre le feu.

#### 5.2. Dangers particuliers résultant de la substance ou du mélange

Danger d'incendie : Aucun risque d'incendie.  
 Danger d'explosion : Aucun danger d'explosion direct.  
 Produits de décomposition dangereux en cas d'incendie : En cas de feu, présence de fumées dangereuses: Monoxyde de carbone, Dioxyde de carbone.

#### 5.3. Conseils aux pompiers

Instructions de lutte contre l'incendie : Evacuer le personnel vers un endroit sûr. Refroidir les conteneurs exposés par pulvérisation ou brouillard d'eau. Eviter que les eaux usées de lutte contre l'incendie contaminent l'environnement.  
 Protection en cas d'incendie : Ne pas intervenir sans un équipement de protection adapté. Appareil de protection respiratoire autonome isolant. Protection complète du corps.

### RUBRIQUE 6: Mesures à prendre en cas de dispersion accidentelle

#### 6.1. Précautions individuelles, équipement de protection et procédures d'urgence

##### 6.1.1. Pour les non-secouristes

Équipement de protection : Porter l'équipement de protection individuelle recommandé.  
 Procédures d'urgence : Eloigner le personnel superflu. Ventiler la zone de déversement. Ne pas toucher le produit déversé ou marcher dessus. Éviter de respirer les brouillards, vapeurs. Éviter le contact avec la peau et les yeux.

##### 6.1.2. Pour les secouristes

Équipement de protection : Ne pas intervenir sans un équipement de protection adapté. Pour plus d'informations, se reporter à la rubrique 8 : "Contrôle de l'exposition-protection individuelle".

#### 6.2. Précautions pour la protection de l'environnement

Éviter le rejet dans l'environnement.

#### 6.3. Méthodes et matériel de confinement et de nettoyage

Pour la rétention : Obturer la fuite si cela peut se faire sans danger. Contenir la matière déversée en l'endiguant ou à l'aide de matières absorbantes de façon à empêcher l'écoulement dans les égouts ou les cours d'eau.

Procédés de nettoyage	: Grandes quantités : Couvrir le produit répandu avec un matériau incombustible, p.ex.: sable, terre, vermiculite. Balayer ou enlever à la pelle, mettre dans un récipient fermé pour élimination. Avertir les autorités si le produit pénètre dans les égouts ou dans les eaux du domaine public. Absorber le liquide répandu en petite quantité dans un matériau non combustible et pelleter dans un conteneur pour élimination. Après le nettoyage, rincer les restes de produit à l'eau. Rincer abondamment à l'eau les surfaces contaminées. Ne jamais remettre le produit répandu dans son récipient d'origine en vue d'une éventuelle réutilisation.
Autres informations	: Eliminer les matières ou résidus solides dans un centre autorisé.

#### 6.4. Référence à d'autres rubriques

Pour plus d'informations, se reporter à la rubrique 8 : "Contrôle de l'exposition-protection individuelle". Pour plus d'informations, se reporter à la rubrique 13.

## RUBRIQUE 7: Manipulation et stockage

### 7.1. Précautions à prendre pour une manipulation sans danger

Précautions à prendre pour une manipulation sans danger	: Assurer une bonne ventilation du poste de travail. Eviter le contact avec la peau et les yeux. Porter un équipement de protection individuel. Ne pas respirer les vapeurs, brouillards. Produit à manipuler en suivant une bonne hygiène industrielle et des procédures de sécurité.
Température de manipulation	: < 200 °C
Mesures d'hygiène	: Laver les vêtements contaminés avant réutilisation. Ne pas manger, boire ou fumer en manipulant ce produit. Se laver les mains après toute manipulation.

### 7.2. Conditions d'un stockage sûr, y compris d'éventuelles incompatibilités

Conditions de stockage	: Conserver le récipient bien fermé dans un endroit frais et bien ventilé. Garder sous clef.
Matières incompatibles	: Agent oxydant. Bases. Acides. Métaux.
Température de stockage	: < 200 °C
Lieu de stockage	: Stocker en conformité avec la réglementation locale.

### 7.3. Utilisation(s) finale(s) particulière(s)

Annexe.

## RUBRIQUE 8: Contrôles de l'exposition/protection individuelle

### 8.1. Paramètres de contrôle

#### 8.1.1 Valeurs limites nationales d'exposition professionnelle et biologiques

Pas d'informations complémentaires disponibles

#### 8.1.2. Procédures de suivi recommandées

Pas d'informations complémentaires disponibles

#### 8.1.3. Contaminants atmosphériques formés

Pas d'informations complémentaires disponibles

#### 8.1.4. DNEL et PNEC

Pas d'informations complémentaires disponibles

#### 8.1.5. Bande de contrôle

Pas d'informations complémentaires disponibles



## 8.2. Contrôles de l'exposition

### 8.2.1. Contrôles techniques appropriés

#### Contrôles techniques appropriés:

Des rince-œil de secours et des douches de sécurité doivent être installés à proximité de tout endroit où il y a risque d'exposition. Ne pas exposer à des températures supérieures à 200 °C / 392 °F. Assurer une bonne ventilation du poste de travail.

### 8.2.2. Équipements de protection individuelle

#### Équipement de protection individuelle:

Porter l'équipement de protection individuelle recommandé.

#### Symbole(s) de l'équipement de protection individuelle:



#### 8.2.2.1. Protection des yeux et du visage

Protection oculaire:			
Lunettes de sécurité. En cas de risque de projection de liquide: Ecran facial			
Type	Champ d'application	Caractéristiques	Norme
Lunettes de sécurité	Gouttelettes, Aérosols		EN 166
Masque facial	Gouttelettes, Aérosols		EN 166

#### 8.2.2.2. Protection de la peau

Protection de la peau et du corps:	
Porter un vêtement de protection approprié	
Type	Norme
Vêtements de protection à manches longues	EN 13034
Bottes de sécurité (au-dessus des chevilles)	EN 13832
De grandes quantités, En cas de risque de projection de liquide: Tablier	EN 14605

Protection des mains:					
Gants de protection					
Type	Matériau	Perméation	Épaisseur (mm)	Pénétration	Norme
Gants de protection	Caoutchouc butyle, Caoutchouc chloroprène (CR), Chlorure de polyvinyl (PVC)	6 (> 480 minutes)	0.5		EN 374
Gants de protection	Caoutchouc nitrile (NBR)	6 (> 480 minutes)	0.35		EN 374
Gants de protection	Fluoroélastomère (FKM)	6 (> 480 minutes)	0.4		EN 374

#### 8.2.2.3. Protection des voies respiratoires

Protection des voies respiratoires:			
Pendant les pulvérisations, porter un appareil respiratoire approprié. Systèmes ouverts			
Appareil	Type de filtre	Condition	Norme
Masque complet	Type A - Composés organiques à point d'ébullition élevé (>65°C)	Aérosols, Gouttelettes	EN 136, EN 14387

### 8.2.2.4. Protection contre les risques thermiques

Pas d'informations complémentaires disponibles

### 8.2.3. Contrôle de l'exposition de l'environnement

#### Contrôle de l'exposition de l'environnement:

Éviter le rejet dans l'environnement.

#### Autres informations:

Produit à manipuler en suivant une bonne hygiène industrielle et des procédures de sécurité. Ne pas manger, boire ou fumer en manipulant ce produit. Se laver les mains après toute manipulation. Éviter le contact avec la peau, les yeux ou les vêtements. Les travailleurs doivent être formés à l'utilisation appropriée et à la manipulation de ce produit, conformément aux réglementations en vigueur. Nettoyer régulièrement l'équipement, les locaux et les vêtements de travail.

## RUBRIQUE 9: Propriétés physiques et chimiques

### 9.1. Informations sur les propriétés physiques et chimiques essentielles

État physique	: Liquide
Couleur	: Incolore. Jaunâtre.
Apparence	: Limpide.
Odeur	: Caractéristique.
Seuil olfactif	: Pas disponible
Point de fusion	: Pas disponible
Point de congélation	: Pas disponible
Point d'ébullition	: 120 – 130 °C
Inflammabilité	: Pas disponible
Limites d'explosivité	: Pas disponible
Limite inférieure d'explosivité (LIE)	: Pas disponible
Limite supérieure d'explosivité (LSE)	: Pas disponible
Point d'éclair	: Pas disponible
Température d'auto-inflammation	: > 400 °C 93% w/w
Température de décomposition	: > 200 °C
pH	: < 1,2 (25°C)
Viscosité, cinématique	: Pas disponible
Viscosité, dynamique	: 5 – 60 mPa·s (25°C)
Solubilité	: Miscible avec l'eau.
Coefficient de partage n-octanol/eau (Log Kow)	: Pas disponible
Coefficient de partage n-octanol/eau (Log Pow)	: -0,62
Pression de vapeur	: Pas disponible
Pression de vapeur à 50 °C	: Pas disponible
Masse volumique	: 1,2 g/cm <sup>3</sup>
Densité relative	: Pas disponible
Densité relative de vapeur à 20 °C	: Pas disponible
Taille d'une particule	: Non applicable
Distribution granulométrique	: Non applicable
Forme de particule	: Non applicable
Ratio d'aspect d'une particule	: Non applicable
État d'agrégation des particules	: Non applicable

État d'agglomération des particules : Non applicable  
 Surface spécifique d'une particule : Non applicable  
 Empoussiérage des particules : Non applicable

### 9.2. Autres informations

#### 9.2.1. Informations concernant les classes de danger physique

Pas d'informations complémentaires disponibles

#### 9.2.2. Autres caractéristiques de sécurité

Tension superficielle : 44 - 50 mN/m @50 - 90%

## RUBRIQUE 10: Stabilité et réactivité

### 10.1. Réactivité

Le produit n'est pas réactif dans les conditions normales d'utilisation, de stockage et de transport.

### 10.2. Stabilité chimique

Stable dans les conditions normales.

### 10.3. Possibilité de réactions dangereuses

Pas de réaction dangereuse connue dans les conditions normales d'emploi.

### 10.4. Conditions à éviter

Ne pas exposer à des températures supérieures à 200 °C / 392 °F.

### 10.5. Matières incompatibles

Agent oxydant. Bases. Acides. Métaux.

### 10.6. Produits de décomposition dangereux

En cas de feu, présence de fumées dangereuses: Dioxyde de carbone, Monoxyde de carbone.

## RUBRIQUE 11: Informations toxicologiques

### 11.1. Informations sur les classes de danger telles que définies dans le règlement (CE) n° 1272/2008

Toxicité aiguë (orale) : Non classé  
 Toxicité aiguë (cutanée) : Non classé  
 Toxicité aiguë (Inhalation) : Non classé

acide L-(+)-lactique (79-33-4)	
DL50 orale rat	3543 mg/kg de poids corporel (EPA OPP 81-1 method)
DL50 cutanée lapin	> 2000 mg/kg de poids corporel (EPA OPP 81-2 method)
CL50 Inhalation - Rat (Poussière/brouillard)	> 7,94 mg/l/4h (méthode OCDE 403)

Corrosion cutanée/irritation cutanée : Provoque de graves brûlures de la peau.  
 pH: < 1,2 (25°C)  
 Lésions oculaires graves/irritation oculaire : Provoque de graves lésions des yeux.  
 pH: < 1,2 (25°C)  
 Sensibilisation respiratoire ou cutanée : Non classé  
 Mutagénicité sur les cellules germinales : Non classé  
 Cancérogénicité : Non classé

Toxicité pour la reproduction : Non classé

Toxicité spécifique pour certains organes cibles (exposition unique) : Non classé

Toxicité spécifique pour certains organes cibles (exposition répétée) : Non classé

Danger par aspiration : Non classé

### 11.2. Informations sur les autres dangers

#### 11.2.1. Propriétés perturbant le système endocrinien

Effets néfastes sur la santé causés par les propriétés perturbant le système endocrinien : Non applicable

#### 11.2.2 Autres informations

Effets néfastes potentiels sur la santé humaine et symptômes possibles : Rougeurs, douleur, Brûlures, Provoque des lésions oculaires graves.

## RUBRIQUE 12: Informations écologiques

### 12.1. Toxicité

Ecologie - général : Le produit non neutralisé peut être dangereux pour les organismes aquatiques.

Dangers pour le milieu aquatique, à court terme (aiguë) : Non classé

Dangers pour le milieu aquatique, à long terme (chronique) : Non classé

acide L-(+)-lactique (79-33-4)	
CL50 - Poisson [1]	130 – 320 mg/l
CE50 - Crustacés [1]	130 – 750 mg/l
ErC50 algues	3500 mg/l
NOEC chronique algues	1900 mg/l

### 12.2. Persistance et dégradabilité

L-acide lactique	
Persistance et dégradabilité	Facilement biodégradable.

acide L-(+)-lactique (79-33-4)	
Persistance et dégradabilité	Facilement biodégradable.

### 12.3. Potentiel de bioaccumulation

L-acide lactique	
Coefficient de partage n-octanol/eau (Log Pow)	-0,62

acide L-(+)-lactique (79-33-4)	
Coefficient de partage n-octanol/eau (Log Pow)	-0,54 (méthode OCDE 107)

## 12.4. Mobilité dans le sol

Pas d'informations complémentaires disponibles

## 12.5. Résultats des évaluations PBT et vPvB

Composant	
acide L-(+)-lactique (79-33-4)	Cette substance/mélange ne remplit pas les critères PBT du règlement REACH annexe XIII Cette substance/mélange ne remplit pas les critères vPvB du règlement REACH annexe XIII

## 12.6. Propriétés perturbant le système endocrinien

Effets néfastes sur l'environnement causés par les propriétés perturbant le système endocrinien : Non applicable

## 12.7. Autres effets néfastes

Pas d'informations complémentaires disponibles






## RUBRIQUE 13: Considérations relatives à l'élimination

### 13.1. Méthodes de traitement des déchets

Législation régionale (déchets) : Eliminer conformément aux règlements de sécurité locaux/nationaux en vigueur.  
Méthodes de traitement des déchets : Eliminer le contenu/récipient conformément aux consignes de tri du collecteur agréé.  
Recommandations pour l'élimination des eaux usées : Elimination à effectuer conformément aux prescriptions légales.  
Recommandations pour le traitement du produit/emballage : Les récipients vides seront recyclés, réutilisés ou éliminés en suivant les règlements locaux.

## RUBRIQUE 14: Informations relatives au transport


En conformité avec: ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
<b>14.1. Numéro ONU ou numéro d'identification</b>				
UN 3265	UN 3265	UN 3265	UN 3265	UN 3265
<b>14.2. Désignation officielle de transport de l'ONU</b>				
LIQUIDE ORGANIQUE CORROSIF, ACIDE, N.S.A. (Acide lactique)	LIQUIDE ORGANIQUE CORROSIF, ACIDE, N.S.A. (Acide lactique)	Corrosive liquid, acidic, organic, n.o.s. (Lactic acid)	LIQUIDE ORGANIQUE CORROSIF, ACIDE, N.S.A. (Acide lactique)	LIQUIDE ORGANIQUE CORROSIF, ACIDE, N.S.A. (Acide lactique)
<b>14.3. Classe(s) de danger pour le transport</b>				
8	8	8	8	8
				
<b>14.4. Groupe d'emballage</b>				
III	III	III	III	III
<b>14.5. Dangers pour l'environnement</b>				
Dangereux pour l'environnement : Non	Dangereux pour l'environnement : Non Polluant marin : Non	Dangereux pour l'environnement : Non	Dangereux pour l'environnement : Non	Dangereux pour l'environnement : Non

Pas d'informations supplémentaires disponibles

### 14.6. Précautions particulières à prendre par l'utilisateur

#### Transport par voie terrestre

Code de classification (ADR)	: C3
Dispositions spéciales (ADR)	: 274
Quantités limitées (ADR)	: 5I
Quantités exceptées (ADR)	: E1
Instructions d'emballage (ADR)	: P001, IBC03, LP01, R001
Dispositions relatives à l'emballage en commun (ADR)	: MP19
Instructions pour citernes mobiles et conteneurs pour vrac (ADR)	: T7
Dispositions spéciales pour citernes mobiles et conteneurs pour vrac (ADR)	: TP1, TP28
Code-citerne (ADR)	: L4BN
Véhicule pour le transport en citerne	: AT
Catégorie de transport (ADR)	: 3
Dispositions spéciales de transport - Colis (ADR)	: V12
Numéro d'identification du danger (code Kemler)	: 80
Panneaux oranges	: 

Code de restriction en tunnels (ADR) : E

#### Transport maritime

Dispositions spéciales (IMDG)	: 223, 274
Quantités limitées (IMDG)	: 5 L
Quantités exceptées (IMDG)	: E1
Instructions d'emballage (IMDG)	: P001, LP01
Instructions d'emballages GRV (IMDG)	: IBC03
Instructions pour citernes (IMDG)	: T7
Dispositions spéciales pour citernes (IMDG)	: TP1, TP28
N° FS (Feu)	: F-A
N° FS (Déversement)	: S-B
Catégorie de chargement (IMDG)	: A
Arrimage et manutention (Code IMDG)	: SW2
Tri (IMDG)	: SGG1, SG36, SG49
Propriétés et observations (IMDG)	: Causes burns to skin, eyes and mucous membranes.

#### Transport aérien

Quantités exceptées avion passagers et cargo (IATA)	: E1
Quantités limitées avion passagers et cargo (IATA)	: Y841
Quantité nette max. pour quantité limitée avion passagers et cargo (IATA)	: 1L
Instructions d'emballage avion passagers et cargo (IATA)	: 852
Quantité nette max. pour avion passagers et cargo (IATA)	: 5L
Instructions d'emballage avion cargo seulement (IATA)	: 856
Quantité max. nette avion cargo seulement (IATA)	: 60L
Dispositions spéciales (IATA)	: A3, A803
Code ERG (IATA)	: 8L

#### Transport par voie fluviale

Code de classification (ADN)	: C3
Dispositions spéciales (ADN)	: 274
Quantités limitées (ADN)	: 5 L



Quantités exceptées (ADN)	: E1
Transport admis (ADN)	: T
Équipement exigé (ADN)	: PP, EP
Nombre de cônes/feux bleus (ADN)	: 0
<b>Transport ferroviaire</b>	
Code de classification (RID)	: C3
Dispositions spéciales (RID)	: 274
Quantités limitées (RID)	: 5L
Quantités exceptées (RID)	: E1
Instructions d'emballage (RID)	: P001, IBC03, LP01, R001
Dispositions particulières relatives à l'emballage en commun (RID)	: MP19
Instructions pour citernes mobiles et conteneurs pour vrac (RID)	: T7
Dispositions spéciales pour citernes mobiles et conteneurs pour vrac (RID)	: TP1, TP28
Codes-citerne pour les citernes RID (RID)	: L4BN
Catégorie de transport (RID)	: 3
Dispositions spéciales de transport - Colis (RID)	: W12
Colis express (RID)	: CE8
Numéro d'identification du danger (RID)	: 80

### 14.7. Transport maritime en vrac conformément aux instruments de l'OMI

Non applicable

## RUBRIQUE 15: Informations relatives à la réglementation

### 15.1. Réglementations/législation particulières à la substance ou au mélange en matière de sécurité, de santé et d'environnement

#### 15.1.1. Réglementations UE

Les restrictions suivantes sont applicables selon l'annexe XVII du Règlement (CE) N° 1907/2006 (REACH):		
Code de référence	Applicable sur	Titre de l'entrée ou description
3(b)	L-acide lactique ; acide L-(+)-lactique	Substances ou mélanges qui répondent aux critères pour une des classes ou catégories de danger ci-après, visées à l'annexe I du règlement (CE) n° 1272/2008: Classes de danger 3.1 à 3.6, 3.7 effets néfastes sur la fonction sexuelle et la fertilité ou sur le développement, 3.8 effets autres que les effets narcotiques, 3.9 et 3.10

Ne contient aucune substance de la liste candidate REACH

Ne contient aucune substance listée à l'Annexe XIV de REACH

Ne contient aucune substance soumise au règlement (UE) n° 649/2012 du Parlement européen et du Conseil du 4 juillet 2012 concernant les exportations et importations de produits chimiques dangereux.

Ne contient aucune substance soumise au règlement (UE) n° 2019/1021 du Parlement européen et du Conseil du 20 juin 2019 concernant les polluants organiques persistants

Autres informations, restrictions et dispositions légales : L'utilisation de ce produit est interdite aux mineurs.

#### 15.1.2. Directives nationales

Non listé dans l'inventaire du TSCA (Toxic Substances Control Act) des Etats-Unis

### 15.2. Évaluation de la sécurité chimique

Une évaluation de la sécurité chimique a été effectuée

**RUBRIQUE 16: Autres informations**

**Indications de changement:**

Classification. Éléments d'étiquetage. Premiers secours. Contrôles de l'exposition/protection individuelle. Informations toxicologiques. Informations écologiques. Informations relatives au transport.

**Abréviations et acronymes:**

ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures
ADR	Accord européen relatif au transport international des marchandises Dangereuses par Route
ETA	Estimation de la toxicité aiguë
FBC	Facteur de bioconcentration
VLB	Valeur limite biologique
DBO	Demande biochimique en oxygène (DBO)
DCO	Demande chimique en oxygène (DCO)
DMEL	Dose dérivée avec effet minimum
DNEL	Dose dérivée sans effet
N° CE	Numéro de la Communauté européenne
CE50	Concentration médiane effective
ED	Propriétés perturbant le système endocrinien
EN	Norme européenne
CIRC	Centre international de recherche sur le cancer
IATA	Association internationale du transport aérien
IMDG	Code maritime international des marchandises dangereuses
CL50	Concentration létale pour 50 % de la population testée (concentration létale médiane)
LD50	Dose létale médiane pour 50 % de la population testée (dose létale médiane)
LOAEL	Dose minimale avec effet nocif observé
NOAEC	Concentration sans effet nocif observé
NOAEL	Dose sans effet nocif observé
NOEC	Concentration sans effet observé
OCDE	Organisation de coopération et de développement économiques
VLE	Limite d'exposition professionnelle
PBT	Persistant, bioaccumulable et toxique
PNEC	Concentration(s) prédite(s) sans effet
RID	Règlement International concernant le transport de marchandises dangereuses par chemin de fer
FDS	Fiche de Données de Sécurité
STP	Station d'épuration



DThO	Besoin théorique en oxygène (BThO)
TLM	Tolérance limite médiane
COV	Composés organiques volatiles
N° CAS	Numéro d'enregistrement auprès du Chemical Abstracts Service
N.S.A.	Non spécifié ailleurs
vPvB	Très persistant et très bioaccumulable
WGK	Classe de pollution des eaux

Conseils de formation : Veiller à ce que le personnel soit informé et ou formé sur la nature de l'exposition et les principales mesures pour minimiser l'exposition.

Texte intégral des phrases H et EUH:	
EUH071	Corrosif pour les voies respiratoires.
Eye Dam. 1	Lésions oculaires graves/irritation oculaire, catégorie 1
H314	Provoque de graves brûlures de la peau et de graves lésions des yeux.
H318	Provoque de graves lésions des yeux.
Skin Corr. 1C	Corrosif/irritant pour la peau, catégorie 1, sous-catégorie 1C

Corbion SDS EU

Ces informations sont basées sur nos connaissances actuelles et décrivent le produit pour les seuls besoins de la santé, de la sécurité et de l'environnement. Elles ne devraient donc pas être interprétées comme garantissant une quelconque propriété spécifique du produit.

# EXPOSURE SCENARIO FOR COMMUNICATION

**Substance Name:** L-(+)-lactic acid

**EC Number:** 201-196-2

**CAS Number:** 79-33-4

**Registration Number:** 01-2119474164-39-0000 & 01-2119474164-39-0013

**Date of Generation/Revision:** 07/10/2021

**Author:** PURAC Biochem BV

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# 1. ES 1: Manufacture

## 1.1. Title section

ES name: Manufacture

Environment	
1: Manufacture of the substance	ERC 1
Worker	
2: <i>Chemical production in closed process without likelihood of exposure</i>	PROC 1
3: <i>Chemical production in closed continuous process with occasional controlled exposure</i>	PROC 2
4: <i>Manufacture in closed batch processes with occasional controlled exposure</i>	PROC 3
5: <i>Chemical production where opportunity for exposure arises</i>	PROC 4
6: <i>Transfer of substance or mixture at non-dedicated facilities</i>	PROC 8a
7: <i>Transfer of substance or mixture at dedicated facilities</i>	PROC 8b
8: <i>Transfer of substance or mixture into small containers</i>	PROC 9
9: <i>Use as laboratory reagent</i>	PROC 15
10: <i>Manual maintenance (cleaning and repair) of machinery</i>	PROC 28

## 1.2. Conditions of use affecting exposure

### 1.2.1. Control of worker exposure

The substance is classified for serious eye damage and skin corrosion (moderate hazard, respectively) and additionally labelled as EUH071. Implementation of the following RMMs will ensure that risks due to the irritating properties are controlled to a level of no concern:

Risk management measures	
General risk management measures and advice for operating a closed system:	<ul style="list-style-type: none"> <li>• Training of staff on good practice.</li> <li>• Good standard of personal hygiene.</li> <li>• Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed</li> </ul>
For handling the substance outside a closed system (e.g. sampling, cleaning, etc.) additional safety measures have to be adopted:	<ul style="list-style-type: none"> <li>• Minimization of staff exposed</li> <li>• Segregation of the emitting process</li> <li>• Effective contaminant extraction</li> <li>• Good standard of general ventilation</li> <li>• Minimization of manual phases</li> <li>• Avoidance of contact with contaminated tools and objects</li> <li>• Regular cleaning of equipment and work area</li> </ul>
Additional risk management measures and advice:	<ul style="list-style-type: none"> <li>• Protective gloves: <ul style="list-style-type: none"> <li>○ Material: Butyl rubber, chloroprene rubber, polyvinylchloride (Permeation 6 (&gt; 480 minutes); thickness 0.5 mm; standard EN374; pictograms: yes);</li> <li>○ Material: Nitrile rubber (permeation 6 (&gt; 480 minutes); thickness 0.35 mm; Standard EN374; pictograms: yes)</li> <li>○ Material: FKM; (thickness 0.4 mm; Standard EN374; pictograms: yes)</li> </ul> </li> <li>• Eye protection: Safety goggles; if there is a risk of splashes (e.g. sampling): face shield <ul style="list-style-type: none"> <li>○ Safety goggles (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Face shield (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> <li>• Skin and body protection: Wear suitable protective clothing; if there is a risk of large splashes (e.g. transfer): use protective apron.             <ul style="list-style-type: none"> <li>○ Safety boots (high shoes): standard: EN13832; pictogram: yes</li> <li>○ Long-sleeved protective clothing: standard: 13034; pictogram: yes</li> <li>○ Protective apron: Standard: EN14605: type 3; pictograms: yes</li> </ul> </li> <li>• Respiratory protection: In case of spraying (not closed system), respiratory protection equipment is required.             <ul style="list-style-type: none"> <li>○ Full-face mask (filter type: A, high boiling point organic compound (&gt; 65 °C); condition: aerosols, droplets; standard: EN 140)</li> </ul> </li> <li>• In case of spills/calamities: Face shield, safety boots, long-sleeved protective clothing, protective gloves.</li> </ul>
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**Conditions of use applicable to all contributing scenarios**

<b>Product (article) characteristics</b>
Liquid
Covers concentrations up to 100 %
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Covers use up to 8 h/day
<b>Technical and organisational conditions and measures</b>
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
Use suitable eye protection.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40 °C

### 1.3. Exposure estimation and reference to its source

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

### 1.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.

## 2. ES 2: Formulation or re-packing

### 2.1. Title section

ES name: *Formulation into mixture*

Environment	
1: <i>Formulation into matrix</i>	ERC 2
Worker	
2: <i>Chemical production in closed process without likelihood of exposure</i>	PROC 1
3: <i>Chemical production in closed continuous process with occasional controlled exposure</i>	PROC 2
4: <i>Formulation in closed batch processes with occasional controlled exposure</i>	PROC 3
5: <i>Chemical production where opportunity for exposure arises</i>	PROC 4
6: <i>Mixing or blending in batch processes</i>	PROC 5
7: <i>Calendering operations</i>	PROC 6
8: <i>Transfer of substance or mixture at non-dedicated facilities</i>	PROC 8a
9: <i>Transfer of substance or mixture at dedicated facilities</i>	PROC 8b
10: <i>Transfer of substance or mixture into small containers</i>	PROC 9
11: <i>Treatment of articles by dipping and pouring</i>	PROC 13
12: <i>Tabletting, compression, extrusion, pelletisation, granulation</i>	PROC 14
13: <i>Use as laboratory reagent</i>	PROC 15
14: <i>Manual activities involving hand contact</i>	PROC 19
15: <i>Handling of solid inorganic substances at ambient temperature</i>	PROC 26
16: <i>Manual maintenance (cleaning and repair) of machinery</i>	PROC 28

### 2.2. Conditions of use affecting exposure

#### 2.2.1. Control of worker exposure

The substance is classified for serious eye damage and skin corrosion (moderate hazard, respectively) and additionally labelled as EUH071. Implementation of the following RMMs will ensure that risks due to the irritating properties are controlled to a level of no concern:

Risk management measures	
General risk management measures and advice for operating a closed system:	<ul style="list-style-type: none"> <li>• Training of staff on good practice.</li> <li>• Good standard of personal hygiene.</li> <li>• Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed</li> </ul>
For handling the substance outside a closed system (e.g. sampling, cleaning, etc.) additional safety measures have to be adopted:	<ul style="list-style-type: none"> <li>• Minimization of staff exposed</li> <li>• Segregation of the emitting process</li> <li>• Effective contaminant extraction</li> <li>• Good standard of general ventilation</li> <li>• Minimization of manual phases</li> <li>• Avoidance of contact with contaminated tools and objects</li> <li>• Regular cleaning of equipment and work area</li> </ul>
Additional risk management measures and advice:	<ul style="list-style-type: none"> <li>• Protective gloves: <ul style="list-style-type: none"> <li>○ Material: Butyl rubber, chloroprene rubber, polyvinylchloride (Permeation 6 (&gt; 480 minutes); thickness 0.5 mm; standard EN374; pictograms: yes);</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Material: Nitrile rubber (permeation 6 (&gt; 480 minutes); thickness 0.35 mm; Standard EN374; pictograms: yes)</li> <li>○ Material: FKM; (thickness 0.4 mm; Standard EN374; pictograms: yes)</li> <li>● Eye protection: Safety goggles; if there is a risk of splashes (e.g. sampling): face shield <ul style="list-style-type: none"> <li>○ Safety goggles (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> <li>○ Face shield (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> </ul> </li> <li>● Skin and body protection: Wear suitable protective clothing; if there is a risk of large splashes (e.g. transfer): use protective apron. <ul style="list-style-type: none"> <li>○ Safety boots (high shoes): standard: EN13832; pictogram: yes</li> <li>○ Long-sleeved protective clothing: standard: 13034; pictogram: yes</li> <li>○ Protective apron: Standard: EN14605: type 3; pictograms: yes</li> </ul> </li> <li>● Respiratory protection: In case of spraying (not closed system), respiratory protection equipment is required. <ul style="list-style-type: none"> <li>○ Full-face mask (filter type: A, high boiling point organic compound (&gt; 65 °C); condition: aerosols, droplets; standard: EN 140)</li> </ul> </li> <li>● In case of spills/calamities: Face shield, safety boots, long-sleeved protective clothing, protective gloves.</li> </ul>
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#### **Conditions of use applicable to all contributing scenarios**

<b>Product (article) characteristics</b>
Liquid
Covers concentrations up to 100 %
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Covers use up to 8 h/day
<b>Technical and organisational conditions and measures</b>
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
Use suitable eye protection.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40 °C

### **2.3. Exposure estimation and reference to its source**

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

### **2.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**



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Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.



## 3. ES 3: Formulation or re-packing

### 3.1. Title section

ES name: *Formulation into solid matrix*

Environment	
1: <i>Formulation into solid matrix</i>	ERC 3
Worker	
2: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC 1
3: <i>Chemical production in closed continuous process with occasional controlled exposure</i>	PROC 2
4: <i>Formulation in closed batch processes with occasional controlled exposure</i>	PROC 3
5: <i>Chemical production where opportunity for exposure arises</i>	PROC 4
6: <i>Mixing or blending in batch processes</i>	PROC 5
7: Calendering operations	PROC 6
8: <i>Transfer of substance or mixture at non-dedicated facilities</i>	PROC 8a
9: <i>Transfer of substance or mixture at dedicated facilities</i>	PROC 8b
10: <i>Transfer of substance or mixture into small containers</i>	PROC 9
11: Treatment of articles by dipping and pouring	PROC 13
12: Tableting, compression, extrusion, pelettisation, granulation	PROC 14
13: <i>Use as laboratory reagent</i>	PROC 15
14: Manual activities involving hand contact	PROC 19
15: Handling of solid inorganic substances at ambient temperature	PROC 26
16: <i>Manual maintenance (cleaning and repair) of machinery</i>	PROC 28

### 3.2. Conditions of use affecting exposure

#### 3.2.1. Control of worker exposure

The substance is classified for serious eye damage and skin corrosion (moderate hazard, respectively) and additionally labelled as EUH071. Implementation of the following RMMs will ensure that risks due to the irritating properties are controlled to a level of no concern:

Risk management measures	
General risk management measures and advice for operating a closed system:	<ul style="list-style-type: none"> <li>• Training of staff on good practice.</li> <li>• Good standard of personal hygiene.</li> <li>• Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed</li> </ul>
For handling the substance outside a closed system (e.g. sampling, cleaning, etc.) additional safety measures have to be adopted:	<ul style="list-style-type: none"> <li>• Minimization of staff exposed</li> <li>• Segregation of the emitting process</li> <li>• Effective contaminant extraction</li> <li>• Good standard of general ventilation</li> <li>• Minimization of manual phases</li> <li>• Avoidance of contact with contaminated tools and objects</li> <li>• Regular cleaning of equipment and work area</li> </ul>
Additional risk management measures and advice:	<ul style="list-style-type: none"> <li>• Protective gloves: <ul style="list-style-type: none"> <li>○ Material: Butyl rubber, chloroprene rubber, polyvinylchloride (Permeation 6 (&gt; 480 minutes); thickness 0.5 mm; standard</li> </ul> </li> </ul>

	<p>EN374; pictograms: yes);</p> <ul style="list-style-type: none"> <li>○ Material: Nitrile rubber (permeation 6 (&gt; 480 minutes); thickness 0.35 mm; Standard EN374; pictograms: yes)</li> <li>○ Material: FKM; (thickness 0.4 mm; Standard EN374; pictograms: yes)</li> </ul> <ul style="list-style-type: none"> <li>● Eye protection: Safety goggles; if there is a risk of splashes (e.g. sampling): face shield <ul style="list-style-type: none"> <li>○ Safety goggles (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> <li>○ Face shield (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> </ul> </li> <li>● Skin and body protection: Wear suitable protective clothing; if there is a risk of large splashes (e.g. transfer): use protective apron. <ul style="list-style-type: none"> <li>○ Safety boots (high shoes): standard: EN13832; pictogram: yes</li> <li>○ Long-sleeved protective clothing: standard: 13034; pictogram: yes</li> <li>○ Protective apron: Standard: EN14605: type 3; pictograms: yes</li> </ul> </li> <li>● Respiratory protection: In case of spraying (not closed system), respiratory protection equipment is required. <ul style="list-style-type: none"> <li>○ Full-face mask (filter type: A, high boiling point organic compound (&gt; 65 °C); condition: aerosols, droplets; standard: EN 140)</li> </ul> </li> <li>● In case of spills/calamities: Face shield, safety boots, long-sleeved protective clothing, protective gloves.</li> </ul>
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#### **Conditions of use applicable to all contributing scenarios**

<b>Product (article) characteristics</b>
Liquid
Covers concentrations up to 100 %
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Covers use up to 8 h/day
<b>Technical and organisational conditions and measures</b>
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
Use suitable eye protection.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40 °C

### **3.3. Exposure estimation and reference to its source**

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

### **3.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**



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Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.

## 4. ES 4: Use at industrial sites; Various products; Various sectors

### 4.1. Title section

ES name: *Industrial use of L-(+)-lactic acid as a non-reactive processing aid*

Product category: Adhesives, Sealants (PC 1), Adsorbents (PC 2), Coatings and Paints, Thinners, paint removers (PC 9a), Fertilizers (PC 12), Metal surface treatment products (PC 14), Non-metal-surface treatment products (PC 15), Products such as ph-regulators, flocculants, precipitants, neutralization agents (PC 20), Laboratory Chemicals (PC 21), Lubricants, Greases, Release Products (PC 24), Metal Working Fluids (PC 25), Polishes and Wax Blends (PC 31), Washing and Cleaning Products (PC 35), Water softeners (PC 36), Water treatment chemicals (PC 37)

Sector of use: Agriculture, forestry, fishery (SU 1), Mining (without offshore industries) (SU 2a), Offshore industries (SU 2b), Manufacture of food products (SU 4), Manufacture of bulk, large scale chemicals (including petroleum products) (SU 8), Manufacture of fine chemicals (SU 9)

<b>Environment</b>	
1: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)	ERC 4
<b>Worker</b>	
2: <i>Chemical production in closed continuous process with occasional controlled exposure</i>	PROC 2
3: <i>Formulation in closed batch processes with occasional controlled exposure</i>	PROC 3
4: <i>Chemical production where opportunity for exposure arises</i>	PROC 4
5: <i>Mixing or blending in batch processes</i>	PROC 5
6: <i>Calendering operations</i>	PROC 6
7: <i>Industrial spraying</i>	PROC 7
8: <i>Transfer of substance or mixture at non-dedicated facilities</i>	PROC 8a
9: <i>Transfer of substance or mixture at dedicated facilities</i>	PROC 8b
10: <i>Transfer of substance or mixture into small containers</i>	PROC 9
11: <i>Roller application or brushing</i>	PROC 10
12: <i>Treatment of articles by dipping and pouring</i>	PROC 13
13: <i>Tabletting, compression, extrusion, pelletisation, granulation</i>	PROC 14
14: <i>Use as laboratory reagent</i>	PROC 15
15: <i>Using material as fuel sources, limited exposure to un-burned product to be expected</i>	PROC 16
16: <i>Lubrication at high energy conditions and in partly open process</i>	PROC 17
17: <i>General greasing/lubrication at high kinetic energy conditions</i>	PROC 18
18: <i>Hand-mixing with intimate contact and only PPE available</i>	PROC 19
19: <i>Heat and pressure transfer fluids in dispersive, professional use but closed systems</i>	PROC 20
20: <i>Low energy manipulation and handling of substances bound in/on materials or articles</i>	PROC 21
21: <i>High (mechanical) energy work-up of substances bound in materials and/or articles</i>	PROC 24
22: <i>Handling of solid inorganic substances at ambient temperature</i>	PROC 26
23: <i>Manual maintenance (cleaning and repair) of machinery</i>	PROC 28

### 4.2. Conditions of use affecting exposure

#### 4.2.1. Control of worker exposure

The substance is classified for serious eye damage and skin corrosion (moderate hazard, respectively) and additionally labelled as EUH071. Implementation of the following RMMs will ensure that risks due to the irritating properties are controlled to a level of no concern:

<b>Risk management measures</b>	
General risk management measures and advice for operating a closed system:	<ul style="list-style-type: none"> <li>• Training of staff on good practice.</li> <li>• Good standard of personal hygiene.</li> <li>• Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed</li> </ul>
For handling the substance outside a closed system (e.g. sampling, cleaning, etc.) additional safety measures have to be adopted:	<ul style="list-style-type: none"> <li>• Minimization of staff exposed</li> <li>• Segregation of the emitting process</li> <li>• Effective contaminant extraction</li> <li>• Good standard of general ventilation</li> <li>• Minimization of manual phases</li> <li>• Avoidance of contact with contaminated tools and objects</li> <li>• Regular cleaning of equipment and work area</li> </ul>
Additional risk management measures and advice:	<ul style="list-style-type: none"> <li>• Protective gloves: <ul style="list-style-type: none"> <li>○ Material: Butyl rubber, chloroprene rubber, polyvinylchloride (Permeation 6 (&gt; 480 minutes); thickness 0.5 mm; standard EN374; pictograms: yes);</li> <li>○ Material: Nitrile rubber (permeation 6 (&gt; 480 minutes); thickness 0.35 mm; Standard EN374; pictograms: yes)</li> <li>○ Material: FKM; (thickness 0.4 mm; Standard EN374; pictograms: yes)</li> </ul> </li> <li>• Eye protection: Safety goggles; if there is a risk of splashes (e.g. sampling): face shield <ul style="list-style-type: none"> <li>○ Safety goggles (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> <li>○ Face shield (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> </ul> </li> <li>• Skin and body protection: Wear suitable protective clothing; if there is a risk of large splashes (e.g. transfer): use protective apron. <ul style="list-style-type: none"> <li>○ Safety boots (high shoes): standard: EN13832; pictogram: yes</li> <li>○ Long-sleeved protective clothing: standard: 13034; pictogram: yes</li> <li>○ Protective apron: Standard: EN14605: type 3; pictograms: yes</li> </ul> </li> <li>• Respiratory protection: In case of spraying (not closed system), respiratory protection equipment is required. <ul style="list-style-type: none"> <li>○ Full-face mask (filter type: A, high boiling point organic compound (&gt; 65 °C); condition: aerosols, droplets; standard: EN 140)</li> </ul> </li> <li>• In case of spills/calamities: Face shield, safety boots, long-sleeved protective clothing, protective gloves.</li> </ul>

#### **Conditions of use applicable to all contributing scenarios**

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %
Liquid
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Covers use up to 8 h/day
<b>Technical and organisational conditions and measures</b>
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and



machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
Use suitable eye protection.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40 °C

### 4.3. Exposure estimation and reference to its source

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

### 4.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.

## 5. ES 5: Use at industrial sites; Various products (PC 1, PC 3, PC 4, PC 8, PC 9a, PC 9b, PC 9c, PC 14, PC 15, PC 20, PC 21, PC 24, PC 25, PC 31, PC 35, PC 37, PC 38); Various sectors (SU 8, SU 9)

### 5.1. Title section

ES name: *Industrial use of L-(+)-lactic acid as a reactive processing aid*

Product category: Adhesives, Sealants (PC 1), Air care products (PC 3), Anti-Freeze and De-icing products (PC 4), Biocidal Products (PC 8), Coatings and Paints, Thinners, paint removers (PC 9a), Fillers, putties, plasters, modelling clay (PC 9b), Finger paints (PC 9c), Metal surface treatment products (PC 14), Non-metal-surface treatment products (PC 15), Products such as ph-regulators, flocculants, precipitants, neutralization agents (PC 20), Laboratory Chemicals (PC 21), Lubricants, Greases, Release Products (PC 24), Metal Working Fluids (PC 25), Polishes and Wax Blends (PC 31), Washing and Cleaning Products (PC 35), Water treatment chemicals (PC 37), Welding and soldering products, flux products (PC 38)

Sector of use: Manufacture of bulk, large scale chemicals (including petroleum products) (SU 8), Manufacture of fine chemicals (SU 9)

<b>Environment</b>	
1: <i>Use of reactive processing aid (no inclusion)</i>	ERC 6b
<b>Worker</b>	
2: <i>Formulation in closed batch processes with occasional controlled exposure</i>	PROC 3
3: <i>Chemical production where opportunity for exposure arises</i>	PROC 4
4: <i>Mixing or blending in batch processes</i>	PROC 5
5: <i>Calendering operations</i>	PROC 6
6: <i>Industrial spraying</i>	PROC 7
7: <i>Transfer of substance or mixture at non-dedicated facilities</i>	PROC 8a
8: <i>Transfer of substance or mixture at dedicated facilities</i>	PROC 8b
9: <i>Transfer of substance or mixture into small containers</i>	PROC 9
10: <i>Roller application or brushing</i>	PROC 10
11: <i>Treatment of articles by dipping and pouring</i>	PROC 13
12: <i>Tabletting, compression, extrusion, pelletisation, granulation</i>	PROC 14
13: <i>Use as laboratory reagent</i>	PROC 15
14: <i>Using material as fuel sources, limited exposure to un-burned product to be expected</i>	PROC 16
15: <i>Lubrication at high energy conditions and in partly open process</i>	PROC 17
16: <i>General greasing/lubrication at high kinetic energy conditions</i>	PROC 18
17: <i>Hand-mixing with intimate contact and only PPE available</i>	PROC 19
18: <i>Heat and pressure transfer fluids in dispersive, professional use but closed systems</i>	PROC 20
19: <i>Low energy manipulation and handling of substances bound in/on materials or articles</i>	PROC 21
20: <i>High (mechanical) energy work-up of substances bound in materials and/or articles</i>	PROC 24
21: <i>Handling of solid inorganic substances at ambient temperature</i>	PROC 26
22: <i>Manual maintenance (cleaning and repair) of machinery</i>	PROC 28

### 5.2. Conditions of use affecting exposure

#### 5.2.1. Control of worker exposure

The substance is classified for serious eye damage and skin corrosion (moderate hazard, respectively) and additionally labelled as EUH071. Implementation of the following RMMs will ensure that risks due to the irritating properties are controlled to a level of no concern:

<b>Risk management measures</b>	
General risk management measures and advice for operating a closed system:	<ul style="list-style-type: none"> <li>• Training of staff on good practice.</li> <li>• Good standard of personal hygiene.</li> <li>• Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed</li> </ul>
For handling the substance outside a closed system (e.g. sampling, cleaning, etc.) additional safety measures have to be adopted:	<ul style="list-style-type: none"> <li>• Minimization of staff exposed</li> <li>• Segregation of the emitting process</li> <li>• Effective contaminant extraction</li> <li>• Good standard of general ventilation</li> <li>• Minimization of manual phases</li> <li>• Avoidance of contact with contaminated tools and objects</li> <li>• Regular cleaning of equipment and work area</li> </ul>
Additional risk management measures and advice:	<ul style="list-style-type: none"> <li>• Protective gloves: <ul style="list-style-type: none"> <li>○ Material: Butyl rubber, chloroprene rubber, polyvinylchloride (Permeation 6 (&gt; 480 minutes); thickness 0.5 mm; standard EN374; pictograms: yes);</li> <li>○ Material: Nitrile rubber (permeation 6 (&gt; 480 minutes); thickness 0.35 mm; Standard EN374; pictograms: yes)</li> <li>○ Material: FKM; (thickness 0.4 mm; Standard EN374; pictograms: yes)</li> </ul> </li> <li>• Eye protection: Safety goggles; if there is a risk of splashes (e.g. sampling): face shield <ul style="list-style-type: none"> <li>○ Safety goggles (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> <li>○ Face shield (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> </ul> </li> <li>• Skin and body protection: Wear suitable protective clothing; if there is a risk of large splashes (e.g. transfer): use protective apron. <ul style="list-style-type: none"> <li>○ Safety boots (high shoes): standard: EN13832; pictogram: yes</li> <li>○ Long-sleeved protective clothing: standard: 13034; pictogram: yes</li> <li>○ Protective apron: Standard: EN14605: type 3; pictograms: yes</li> </ul> </li> <li>• Respiratory protection: In case of spraying (not closed system), respiratory protection equipment is required. <ul style="list-style-type: none"> <li>○ Full-face mask (filter type: A, high boiling point organic compound (&gt; 65 °C); condition: aerosols, droplets; standard: EN 140)</li> </ul> </li> <li>• In case of spills/calamities: Face shield, safety boots, long-sleeved protective clothing, protective gloves.</li> </ul>

#### **Conditions of use applicable to all contributing scenarios**

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %
Liquid
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Covers use up to 8 h/day
<b>Technical and organisational conditions and measures</b>
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and





machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
Use suitable eye protection.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40 °C

### 5.3. Exposure estimation and reference to its source

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

### 5.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.

## 6. ES 6: Use at industrial sites; Various products (PC 4, PC 21, PC 24); Various sectors (SU 2a, SU 2b, SU 17, SU 19, SU 23)

### 6.1. Title section

ES name: *Industrial use of L-(+)-lactic acid in functional fluids*

Product category: Anti-Freeze and De-icing products (PC 4), Laboratory Chemicals (PC 21), Lubricants, Greases, Release Products (PC 24)

Sector of use: Mining (without offshore industries) (SU 2a), Offshore industries (SU 2b), General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment. (SU 17), Building and construction work (SU 19), Electricity, steam, gas water supply and sewage treatment (SU 23)

Environment	
1: <i>Use of functional fluid</i>	ERC 7
Worker	
2: <i>Chemical production where opportunity for exposure arises</i>	PROC 4
3: <i>Mixing or blending in batch processes</i>	PROC 5
4: <i>Industrial spraying</i>	PROC 7
5: <i>Transfer of substance or mixture at non-dedicated facilities</i>	PROC 8a
6: <i>Transfer of substance or mixture at dedicated facilities</i>	PROC 8b
7: <i>Transfer of substance or mixture into small containers</i>	PROC 9
8: <i>Roller application or brushing</i>	PROC 10
9: <i>Treatment of articles by dipping and pouring</i>	PROC 13
10: <i>Tabletting, compression, extrusion, pelletisation, granulation</i>	PROC 14
11: <i>Use as laboratory reagent</i>	PROC 15
12: <i>Using material as fuel sources, limited exposure to un-burned product to be expected</i>	PROC 16
13: <i>Lubrication at high energy conditions and in partly open process</i>	PROC 17
14: <i>General greasing/lubrication at high kinetic energy conditions</i>	PROC 18
15: <i>Hand-mixing with intimate contact and only PPE available</i>	PROC 19
16: <i>Heat and pressure transfer fluids in dispersive, professional use but closed systems</i>	PROC 20
17: <i>High (mechanical) energy work-up of substances bound in materials and/or articles</i>	PROC 24
18: <i>Handling of solid inorganic substances at ambient temperature</i>	PROC 26
19: <i>Manual maintenance (cleaning and repair) of machinery</i>	PROC 28

### 6.2. Conditions of use affecting exposure

#### 6.2.1. Control of worker exposure

The substance is classified for serious eye damage and skin corrosion (moderate hazard, respectively) and additionally labelled as EUH071. Implementation of the following RMMs will ensure that risks due to the irritating properties are controlled to a level of no concern:

Risk management measures	
General risk management measures and advice for operating a closed system:	<ul style="list-style-type: none"> <li>• Training of staff on good practice.</li> <li>• Good standard of personal hygiene.</li> <li>• Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed</li> </ul>

For handling the substance outside a closed system (e.g. sampling, cleaning, etc.) additional safety measures have to be adopted:	<ul style="list-style-type: none"> <li>• Minimization of staff exposed</li> <li>• Segregation of the emitting process</li> <li>• Effective contaminant extraction</li> <li>• Good standard of general ventilation</li> <li>• Minimization of manual phases</li> <li>• Avoidance of contact with contaminated tools and objects</li> <li>• Regular cleaning of equipment and work area</li> </ul>
Additional risk management measures and advice:	<ul style="list-style-type: none"> <li>• Protective gloves: <ul style="list-style-type: none"> <li>○ Material: Butyl rubber, chloroprene rubber, polyvinylchloride (Permeation 6 (&gt; 480 minutes); thickness 0.5 mm; standard EN374; pictograms: yes);</li> <li>○ Material: Nitrile rubber (permeation 6 (&gt; 480 minutes); thickness 0.35 mm; Standard EN374; pictograms: yes)</li> <li>○ Material: FKM; (thickness 0.4 mm; Standard EN374; pictograms: yes)</li> </ul> </li> <li>• Eye protection: Safety goggles; if there is a risk of splashes (e.g. sampling): face shield <ul style="list-style-type: none"> <li>○ Safety goggles (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> <li>○ Face shield (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> </ul> </li> <li>• Skin and body protection: Wear suitable protective clothing; if there is a risk of large splashes (e.g. transfer): use protective apron. <ul style="list-style-type: none"> <li>○ Safety boots (high shoes): standard: EN13832; pictogram: yes</li> <li>○ Long-sleeved protective clothing: standard: 13034; pictogram: yes</li> <li>○ Protective apron: Standard: EN14605: type 3; pictograms: yes</li> </ul> </li> <li>• Respiratory protection: In case of spraying (not closed system), respiratory protection equipment is required. <ul style="list-style-type: none"> <li>○ Full-face mask (filter type: A, high boiling point organic compound (&gt; 65 °C); condition: aerosols, droplets; standard: EN 140)</li> </ul> </li> <li>• In case of spills/calamities: Face shield, safety boots, long-sleeved protective clothing, protective gloves.</li> </ul>

#### **Conditions of use applicable to all contributing scenarios**

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %
Liquid
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Covers use up to 8 h/day
<b>Technical and organisational conditions and measures</b>
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
Use suitable eye protection.
<b>Other conditions affecting workers exposure</b>
Indoor use

Assumes process temperature up to 40 °C
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### **6.3. Exposure estimation and reference to its source**

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

### **6.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.

## 7. ES 7: Use at industrial sites; Various products (PC 1, PC 9a, PC 18, PC 20, PC 23, PC 26, PC 32, PC 34); Various sectors (SU 4, SU 5, SU 6a, SU 6b, SU 7, SU 11, SU 12, SU 13, SU 18)

### 7.1. Title section

ES name: *Industrial use of L-(+)-lactic acid for producing articles*

Product category: Adhesives, Sealants (PC 1), Coatings and Paints, Thinners, paint removers (PC 9a), Ink and Toners (PC 18), Products such as ph-regulators, flocculants, precipitants, neutralization agents (PC 20), Leather treatment products (PC 23), Paper and board treatment products (PC 26), Polymer Preparations and Compounds (PC 32), Textile dyes and impregnating products (PC 34)

Sector of use: Manufacture of food products (SU 4), Manufacture of textiles, leather, fur (SU 5), Manufacture of wood and wood products (SU 6a), Manufacture of pulp, paper and paper products (SU 6b), Printing and reproduction of recorded media (SU 7), Manufacture of rubber products (SU 11), Manufacture of plastics products, including compounding and conversion (SU 12), Manufacture of other non-metallic mineral products, e.g. plasters, cement (SU 13), Manufacture of furniture (SU 18)

Environment	
1: Use leading to inclusion into/onto article	ERC 5
Worker	
2: Mixing or blending in batch processes	PROC 5
3: Industrial spraying	PROC 7
4: Transfer of substance or mixture at non-dedicated facilities	PROC 8a
5: Transfer of substance or mixture at dedicated facilities	PROC 8b
6: Roller application or brushing	PROC 10
7: Treatment of articles by dipping and pouring	PROC 13
8: Manual maintenance (cleaning and repair) of machinery	PROC 28
Subsequent service life exposure scenario(s)	
ES 18: Service life (worker at industrial site); Various articles	
ES 19: Service life (worker at industrial site); Various articles (AC 0, AC 1, AC 7, AC 10, AC 11, AC 13)	
ES 20: Service life (professional worker); Various articles (AC 4a, AC 4g)	
ES 21: Service life (consumers); Various articles	

### 7.2. Conditions of use affecting exposure

#### 7.2.1. Control of worker exposure

The substance is classified for serious eye damage and skin corrosion (moderate hazard, respectively) and additionally labelled as EUH071. Implementation of the following RMMs will ensure that risks due to the irritating properties are controlled to a level of no concern:

Risk management measures	
General risk management measures and advice for operating a closed system:	<ul style="list-style-type: none"> <li>• Training of staff on good practice.</li> <li>• Good standard of personal hygiene.</li> <li>• Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed</li> </ul>
For handling the substance outside a closed system (e.g. sampling,	<ul style="list-style-type: none"> <li>• Minimization of staff exposed</li> <li>• Segregation of the emitting process</li> </ul>

cleaning, etc.) additional safety measures have to be adopted:	<ul style="list-style-type: none"> <li>• Effective contaminant extraction</li> <li>• Good standard of general ventilation</li> <li>• Minimization of manual phases</li> <li>• Avoidance of contact with contaminated tools and objects</li> <li>• Regular cleaning of equipment and work area</li> </ul>
Additional risk management measures and advice:	<ul style="list-style-type: none"> <li>• Protective gloves: <ul style="list-style-type: none"> <li>○ Material: Butyl rubber, chloroprene rubber, polyvinylchloride (Permeation 6 (&gt; 480 minutes); thickness 0.5 mm; standard EN374; pictograms: yes);</li> <li>○ Material: Nitrile rubber (permeation 6 (&gt; 480 minutes); thickness 0.35 mm; Standard EN374; pictograms: yes)</li> <li>○ Material: FKM; (thickness 0.4 mm; Standard EN374; pictograms: yes)</li> </ul> </li> <li>• Eye protection: Safety goggles; if there is a risk of splashes (e.g. sampling): face shield <ul style="list-style-type: none"> <li>○ Safety goggles (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> <li>○ Face shield (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> </ul> </li> <li>• Skin and body protection: Wear suitable protective clothing; if there is a risk of large splashes (e.g. transfer): use protective apron. <ul style="list-style-type: none"> <li>○ Safety boots (high shoes): standard: EN13832; pictogram: yes</li> <li>○ Long-sleeved protective clothing: standard: 13034; pictogram: yes</li> <li>○ Protective apron: Standard: EN14605: type 3; pictograms: yes</li> </ul> </li> <li>• Respiratory protection: In case of spraying (not closed system), respiratory protection equipment is required. <ul style="list-style-type: none"> <li>○ Full-face mask (filter type: A, high boiling point organic compound (&gt; 65 °C); condition: aerosols, droplets; standard: EN 140)</li> </ul> </li> <li>• In case of spills/calamities: Face shield, safety boots, long-sleeved protective clothing, protective gloves.</li> </ul>

### **Conditions of use applicable to all contributing scenarios**

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %
Liquid
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Covers use up to 8 h/day
<b>Technical and organisational conditions and measures</b>
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
Use suitable eye protection.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40 °C

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### **7.3. Exposure estimation and reference to its source**

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

### **7.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.

## 8. ES 8: Use at industrial sites; Various products; Various sectors

### 8.1. Title section

ES name: *Industrial use as process regulator in polymerisation processes*

Product category: Coatings and Paints, Thinners, paint removers (PC 9a), Non-metal-surface treatment products (PC 15), Products such as ph-regulators, flocculants, precipitants, neutralization agents (PC 20), Laboratory Chemicals (PC 21), Washing and Cleaning Products (PC 35), Water treatment chemicals (PC 37)

Sector of use: Manufacture of bulk, large scale chemicals (including petroleum products) (SU 8), Manufacture of fine chemicals (SU 9), Manufacture of plastics products, including compounding and conversion (SU 12)

Environment	
1: <i>Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers</i>	ERC 6d
Worker	
2: <i>Formulation in closed batch processes with occasional controlled exposure</i>	PROC 3
3: <i>Chemical production where opportunity for exposure arises</i>	PROC 4
4: <i>Mixing or blending in batch processes</i>	PROC 5
5: <i>Calendering operations</i>	PROC 6
6: <i>Transfer of substance or mixture at non-dedicated facilities</i>	PROC 8a
7: <i>Transfer of substance or mixture at dedicated facilities</i>	PROC 8b
8: <i>Transfer of substance or mixture into small containers</i>	PROC 9
9: <i>Use as laboratory reagent</i>	PROC 15
10: <i>Low energy manipulation and handling of substances bound in/on materials or articles</i>	PROC 21
11: <i>Handling of solid inorganic substances at ambient temperature</i>	PROC 26
12: <i>Manual maintenance (cleaning and repair) of machinery</i>	PROC 28

### 8.2. Conditions of use affecting exposure

#### 8.2.1. Control of worker exposure

The substance is classified for serious eye damage and skin corrosion (moderate hazard, respectively) and additionally labelled as EUH071. Implementation of the following RMMs will ensure that risks due to the irritating properties are controlled to a level of no concern:

Risk management measures	
General risk management measures and advice for operating a closed system:	<ul style="list-style-type: none"> <li>• Training of staff on good practice.</li> <li>• Good standard of personal hygiene.</li> <li>• Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed</li> </ul>
For handling the substance outside a closed system (e.g. sampling, cleaning, etc.) additional safety measures have to be adopted:	<ul style="list-style-type: none"> <li>• Minimization of staff exposed</li> <li>• Segregation of the emitting process</li> <li>• Effective contaminant extraction</li> <li>• Good standard of general ventilation</li> <li>• Minimization of manual phases</li> <li>• Avoidance of contact with contaminated tools and objects</li> <li>• Regular cleaning of equipment and work area</li> </ul>
Additional risk management measures and advice:	<ul style="list-style-type: none"> <li>• Protective gloves: <ul style="list-style-type: none"> <li>○ Material: Butyl rubber, chloroprene rubber, polyvinylchloride</li> </ul> </li> </ul>



	<p>(Permeation 6 (&gt; 480 minutes); thickness 0.5 mm; standard EN374; pictograms: yes);</p> <ul style="list-style-type: none"> <li>○ Material: Nitrile rubber (permeation 6 (&gt; 480 minutes); thickness 0.35 mm; Standard EN374; pictograms: yes)</li> <li>○ Material: FKM; (thickness 0.4 mm; Standard EN374; pictograms: yes)</li> </ul> <ul style="list-style-type: none"> <li>● Eye protection: Safety goggles; if there is a risk of splashes (e.g. sampling): face shield <ul style="list-style-type: none"> <li>○ Safety goggles (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> <li>○ Face shield (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> </ul> </li> <li>● Skin and body protection: Wear suitable protective clothing; if there is a risk of large splashes (e.g. transfer): use protective apron. <ul style="list-style-type: none"> <li>○ Safety boots (high shoes): standard: EN13832; pictogram: yes</li> <li>○ Long-sleeved protective clothing: standard: 13034; pictogram: yes</li> <li>○ Protective apron: Standard: EN14605: type 3; pictograms: yes</li> </ul> </li> <li>● Respiratory protection: In case of spraying (not closed system), respiratory protection equipment is required. <ul style="list-style-type: none"> <li>○ Full-face mask (filter type: A, high boiling point organic compound (&gt; 65 °C); condition: aerosols, droplets; standard: EN 140)</li> </ul> </li> <li>● In case of spills/calamities: Face shield, safety boots, long-sleeved protective clothing, protective gloves.</li> </ul>
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#### **Conditions of use applicable to all contributing scenarios**

<b>Product (article) characteristics</b>
Liquid
Covers concentrations up to 100 %
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Covers use up to 8 h/day
<b>Technical and organisational conditions and measures</b>
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
Use suitable eye protection.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40 °C

### **8.3. Exposure estimation and reference to its source**

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

### **8.4. Guidance to DU to evaluate whether he works inside the**

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## **boundaries set by the ES**

Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.

## 9. ES 9: Use at industrial sites; Various products; Various sectors

### 9.1. Title section

ES name: *Industrial use as intermediate*

Product category: Adsorbents (PC 2), Coatings and Paints, Thinners, paint removers (PC 9a), Non-metal-surface treatment products (PC 15), Products such as ph-regulators, flocculants, precipitants, neutralization agents (PC 20), Laboratory Chemicals (PC 21), Washing and Cleaning Products (PC 35), Water softeners (PC 36), Water treatment chemicals (PC 37)

Sector of use: Manufacture of food products (SU 4), Manufacture of bulk, large scale chemicals (including petroleum products) (SU 8), Manufacture of fine chemicals (SU 9)

<b>Environment</b>	
1: <i>Use of intermediate</i>	ERC 6a
<b>Worker</b>	
2: <i>Formulation in closed batch processes with occasional controlled exposure</i>	PROC 3
3: <i>Chemical production where opportunity for exposure arises</i>	PROC 4
4: <i>Mixing or blending in batch processes</i>	PROC 5
5: <i>Calendering operations</i>	PROC 6
6: <i>Transfer of substance or mixture at non-dedicated facilities</i>	PROC 8a
7: <i>Transfer of substance or mixture at dedicated facilities</i>	PROC 8b
8: <i>Transfer of substance or mixture into small containers</i>	PROC 9
9: <i>Use as laboratory reagent</i>	PROC 15
10: <i>Low energy manipulation and handling of substances bound in/on materials or articles</i>	PROC 21
11: <i>Handling of solid inorganic substances at ambient temperature</i>	PROC 26
12: <i>Manual maintenance (cleaning and repair) of machinery</i>	PROC 28

### 9.2. Conditions of use affecting exposure

#### 9.2.1. Control of worker exposure

The substance is classified for serious eye damage and skin corrosion (moderate hazard, respectively) and additionally labelled as EUH071. Implementation of the following RMMs will ensure that risks due to the irritating properties are controlled to a level of no concern:

<b>Risk management measures</b>	
General risk management measures and advice for operating a closed system:	<ul style="list-style-type: none"> <li>• Training of staff on good practice.</li> <li>• Good standard of personal hygiene.</li> <li>• Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed</li> </ul>
For handling the substance outside a closed system (e.g. sampling, cleaning, etc.) additional safety measures have to be adopted:	<ul style="list-style-type: none"> <li>• Minimization of staff exposed</li> <li>• Segregation of the emitting process</li> <li>• Effective contaminant extraction</li> <li>• Good standard of general ventilation</li> <li>• Minimization of manual phases</li> <li>• Avoidance of contact with contaminated tools and objects</li> <li>• Regular cleaning of equipment and work area</li> </ul>
Additional risk management measures and advice:	<ul style="list-style-type: none"> <li>• Protective gloves: <ul style="list-style-type: none"> <li>○ Material: Butyl rubber, chloroprene rubber, polyvinylchloride</li> </ul> </li> </ul>

	<p>(Permeation 6 (&gt; 480 minutes); thickness 0.5 mm; standard EN374; pictograms: yes);</p> <ul style="list-style-type: none"> <li>○ Material: Nitrile rubber (permeation 6 (&gt; 480 minutes); thickness 0.35 mm; Standard EN374; pictograms: yes)</li> <li>○ Material: FKM; (thickness 0.4 mm; Standard EN374; pictograms: yes)</li> </ul> <ul style="list-style-type: none"> <li>● Eye protection: Safety goggles; if there is a risk of splashes (e.g. sampling): face shield <ul style="list-style-type: none"> <li>○ Safety goggles (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> <li>○ Face shield (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> </ul> </li> <li>● Skin and body protection: Wear suitable protective clothing; if there is a risk of large splashes (e.g. transfer): use protective apron. <ul style="list-style-type: none"> <li>○ Safety boots (high shoes): standard: EN13832; pictogram: yes</li> <li>○ Long-sleeved protective clothing: standard: 13034; pictogram: yes</li> <li>○ Protective apron: Standard: EN14605: type 3; pictograms: yes</li> </ul> </li> <li>● Respiratory protection: In case of spraying (not closed system), respiratory protection equipment is required. <ul style="list-style-type: none"> <li>○ Full-face mask (filter type: A, high boiling point organic compound (&gt; 65 °C); condition: aerosols, droplets; standard: EN 140)</li> </ul> </li> <li>● In case of spills/calamities: Face shield, safety boots, long-sleeved protective clothing, protective gloves.</li> </ul>
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#### **Conditions of use applicable to all contributing scenarios**

<b>Product (article) characteristics</b>
Liquid
Covers concentrations up to 100 %
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Covers use up to 8 h/day
<b>Technical and organisational conditions and measures</b>
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
Use suitable eye protection.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40 °C

### **9.3. Exposure estimation and reference to its source**

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

### **9.4. Guidance to DU to evaluate whether he works inside the**

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## **boundaries set by the ES**

Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.

## 10. ES 10: Use at industrial sites; Other (PC 0)

### 10.1. Title section

ES name: *Industrial use of L-(+)-lactic acid as a monomer*

Product category: Other (PC 0)

Environment	
1: <i>Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)</i>	ERC 6c
Worker	
2: <i>Chemical production in closed process without likelihood of exposure</i>	PROC 1
3: <i>Chemical production in closed continuous process with occasional controlled exposure</i>	PROC 2
4: <i>Manufacture in closed batch processes with occasional controlled exposure</i>	PROC 3
5: <i>Chemical production where opportunity for exposure arises</i>	PROC 4
6: <i>Mixing or blending in batch processes</i>	PROC 5
7: <i>Manual maintenance (cleaning and repair) of machinery</i>	PROC 28

### 10.2. Conditions of use affecting exposure

#### 10.2.1. Control of worker exposure

The substance is classified for serious eye damage and skin corrosion (moderate hazard, respectively) and additionally labelled as EUH071. Implementation of the following RMMs will ensure that risks due to the irritating properties are controlled to a level of no concern:

Risk management measures	
General risk management measures and advice for operating a closed system:	<ul style="list-style-type: none"> <li>• Training of staff on good practice.</li> <li>• Good standard of personal hygiene.</li> <li>• Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed</li> </ul>
For handling the substance outside a closed system (e.g. sampling, cleaning, etc.) additional safety measures have to be adopted:	<ul style="list-style-type: none"> <li>• Minimization of staff exposed</li> <li>• Segregation of the emitting process</li> <li>• Effective contaminant extraction</li> <li>• Good standard of general ventilation</li> <li>• Minimization of manual phases</li> <li>• Avoidance of contact with contaminated tools and objects</li> <li>• Regular cleaning of equipment and work area</li> </ul>
Additional risk management measures and advice:	<ul style="list-style-type: none"> <li>• Protective gloves: <ul style="list-style-type: none"> <li>○ Material: Butyl rubber, chloroprene rubber, polyvinylchloride (Permeation 6 (&gt; 480 minutes); thickness 0.5 mm; standard EN374; pictograms: yes);</li> <li>○ Material: Nitrile rubber (permeation 6 (&gt; 480 minutes); thickness 0.35 mm; Standard EN374; pictograms: yes)</li> <li>○ Material: FKM; (thickness 0.4 mm; Standard EN374; pictograms: yes)</li> </ul> </li> <li>• Eye protection: Safety goggles; if there is a risk of splashes (e.g. sampling): face shield <ul style="list-style-type: none"> <li>○ Safety goggles (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> <li>○ Face shield (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• Skin and body protection: Wear suitable protective clothing; if there is a risk of large splashes (e.g. transfer): use protective apron. <ul style="list-style-type: none"> <li>○ Safety boots (high shoes): standard: EN13832; pictogram: yes</li> <li>○ Long-sleeved protective clothing: standard: 13034; pictogram: yes</li> <li>○ Protective apron: Standard: EN14605: type 3; pictograms: yes</li> </ul> </li> <li>• Respiratory protection: In case of spraying (not closed system), respiratory protection equipment is required. <ul style="list-style-type: none"> <li>○ Full-face mask (filter type: A, high boiling point organic compound (&gt; 65 °C); condition: aerosols, droplets; standard: EN 140)</li> </ul> </li> <li>• In case of spills/calamities: Face shield, safety boots, long-sleeved protective clothing, protective gloves.</li> </ul>
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#### **Conditions of use applicable to all contributing scenarios**

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %
Liquid
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Covers use up to 8 h/day
<b>Technical and organisational conditions and measures</b>
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
Use suitable eye protection.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40 °C

### **10.3. Exposure estimation and reference to its source**

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

### **10.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.

## 11. ES 11: Use at industrial sites; Other (PC 0); Building and construction work (SU 19)

### 11.1. Title section

ES name: *Building and construction preparations*

Product category: Other (PC 0)

Sector of use: Building and construction work (SU 19)

Environment	
1: <i>Use leading to inclusion into/onto article</i>	ERC 5
Worker	
2: <i>Mixing or blending in batch processes</i>	PROC 5
3: <i>Transfer of substance or mixture at non-dedicated facilities</i>	PROC 8a
4: <i>Transfer of substance or mixture at dedicated facilities</i>	PROC 8b
5: <i>Transfer of substance or mixture into small containers</i>	PROC 9
6: <i>Manual maintenance (cleaning and repair) of machinery</i>	PROC 28
Subsequent service life exposure scenario(s)	
ES 18: Service life (worker at industrial site); Various articles	
ES 20: Service life (professional worker); Various articles (AC 4a, AC 4g)	
ES 21: Service life (consumers); Various articles	

### 11.2. Conditions of use affecting exposure

#### 11.2.1. Control of worker exposure

The substance is classified for serious eye damage and skin corrosion (moderate hazard, respectively) and additionally labelled as EUH071. Implementation of the following RMMs will ensure that risks due to the irritating properties are controlled to a level of no concern:

Risk management measures	
General risk management measures and advice for operating a closed system:	<ul style="list-style-type: none"> <li>• Training of staff on good practice.</li> <li>• Good standard of personal hygiene.</li> <li>• Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed</li> </ul>
For handling the substance outside a closed system (e.g. sampling, cleaning, etc.) additional safety measures have to be adopted:	<ul style="list-style-type: none"> <li>• Minimization of staff exposed</li> <li>• Segregation of the emitting process</li> <li>• Effective contaminant extraction</li> <li>• Good standard of general ventilation</li> <li>• Minimization of manual phases</li> <li>• Avoidance of contact with contaminated tools and objects</li> <li>• Regular cleaning of equipment and work area</li> </ul>
Additional risk management measures and advice:	<ul style="list-style-type: none"> <li>• Protective gloves: <ul style="list-style-type: none"> <li>○ Material: Butyl rubber, chloroprene rubber, polyvinylchloride (Permeation 6 (&gt; 480 minutes); thickness 0.5 mm; standard EN374; pictograms: yes);</li> <li>○ Material: Nitrile rubber (permeation 6 (&gt; 480 minutes); thickness 0.35 mm; Standard EN374; pictograms: yes)</li> <li>○ Material: FKM; (thickness 0.4 mm; Standard EN374; pictograms: yes)</li> </ul> </li> <li>• Eye protection: Safety goggles; if there is a risk of splashes (e.g. sampling): face shield</li> </ul>



	<ul style="list-style-type: none"> <li>○ Safety goggles (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> <li>○ Face shield (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> <li>• Skin and body protection: Wear suitable protective clothing; if there is a risk of large splashes (e.g. transfer): use protective apron. <ul style="list-style-type: none"> <li>○ Safety boots (high shoes): standard: EN13832; pictogram: yes</li> <li>○ Long-sleeved protective clothing: standard: 13034; pictogram: yes</li> <li>○ Protective apron: Standard: EN14605: type 3; pictograms: yes</li> </ul> </li> <li>• Respiratory protection: In case of spraying (not closed system), respiratory protection equipment is required. <ul style="list-style-type: none"> <li>○ Full-face mask (filter type: A, high boiling point organic compound (&gt; 65 °C); condition: aerosols, droplets; standard: EN 140)</li> </ul> </li> <li>• In case of spills/calamities: Face shield, safety boots, long-sleeved protective clothing, protective gloves.</li> </ul>
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#### **Conditions of use applicable to all contributing scenarios**

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %
Liquid
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Covers use up to 8 h/day
<b>Technical and organisational conditions and measures</b>
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
Use suitable eye protection.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40 °C

### **11.3. Exposure estimation and reference to its source**

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

### **11.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.

## 12. ES 12: Widespread use by professional workers; Various products; Various sectors

### 12.1. Title section

ES name: *Professional use of L-(+)-lactic acid as a non-reactive processing aid*

Product category: Adhesives, Sealants (PC 1), Air care products (PC 3), Anti-Freeze and De-icing products (PC 4), Biocidal Products (PC 8), Coatings and Paints, Thinners, paint removers (PC 9a), Fillers, putties, plasters, modelling clay (PC 9b), Finger paints (PC 9c), Fertilizers (PC 12), Metal surface treatment products (PC 14), Non-metal-surface treatment products (PC 15), Products such as ph-regulators, flocculants, precipitants, neutralization agents (PC 20), Laboratory Chemicals (PC 21), Lubricants, Greases, Release Products (PC 24), Metal Working Fluids (PC 25), Polishes and Wax Blends (PC 31), Washing and Cleaning Products (PC 35), Welding and soldering products, flux products (PC 38)

Sector of use: Agriculture, forestry, fishery (SU 1), Health services (SU 20)

<b>Environment</b>	
1: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)	ERC 8d, ERC 8a
<b>Worker</b>	
2: <i>Formulation in closed batch processes with occasional controlled exposure</i>	PROC 3
3: <i>Chemical production where opportunity for exposure arises</i>	PROC 4
4: <i>Mixing or blending in batch processes</i>	PROC 5
5: <i>Industrial spraying</i>	PROC 7
6: <i>Transfer of substance or mixture at non-dedicated facilities</i>	PROC 8a
7: <i>Transfer of substance or mixture at dedicated facilities</i>	PROC 8b
8: <i>Transfer of substance or mixture into small containers</i>	PROC 9
9: <i>Roller application or brushing</i>	PROC 10
10: <i>Non industrial spraying</i>	PROC 11
11: <i>Treatment of articles by dipping and pouring</i>	PROC 13
12: <i>Tabletting, compression, extrusion, pelletisation, granulation</i>	PROC 14
13: <i>Use as laboratory reagent</i>	PROC 15
14: <i>Using material as fuel sources, limited exposure to un-burned product to be expected</i>	PROC 16
15: <i>Lubrication at high energy conditions in metal working operations</i>	PROC 17
16: <i>General greasing/lubrication at high kinetic energy conditions</i>	PROC 18
17: <i>Hand-mixing with intimate contact and only PPE available</i>	PROC 19
18: <i>Use of functional fluids in small devices</i>	PROC 20
19: <i>High (mechanical) energy work-up of substances bound in /on materials and/or articles</i>	PROC 24
20: <i>Handling of solid inorganic substances at ambient temperature</i>	PROC 26
21: <i>Manual maintenance (cleaning and repair) of machinery</i>	PROC 28

### 12.2. Conditions of use affecting exposure

#### 12.2.1. Control of worker exposure

The substance is classified for serious eye damage and skin corrosion (moderate hazard, respectively) and additionally labelled as EUH071. Implementation of the following RMMs will ensure that risks due to the irritating properties are controlled to a level of no concern:

<b>Risk management measures</b>	
General risk management measures and advice for operating a closed system:	<ul style="list-style-type: none"> <li>• Training of staff on good practice.</li> <li>• Good standard of personal hygiene.</li> <li>• Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed</li> </ul>
For handling the substance outside a closed system (e.g. sampling, cleaning, etc.) additional safety measures have to be adopted:	<ul style="list-style-type: none"> <li>• Minimization of staff exposed</li> <li>• Segregation of the emitting process</li> <li>• Effective contaminant extraction</li> <li>• Good standard of general ventilation</li> <li>• Minimization of manual phases</li> <li>• Avoidance of contact with contaminated tools and objects</li> <li>• Regular cleaning of equipment and work area</li> </ul>
Additional risk management measures and advice:	<ul style="list-style-type: none"> <li>• Protective gloves: <ul style="list-style-type: none"> <li>○ Material: Butyl rubber, chloroprene rubber, polyvinylchloride (Permeation 6 (&gt; 480 minutes); thickness 0.5 mm; standard EN374; pictograms: yes);</li> <li>○ Material: Nitrile rubber (permeation 6 (&gt; 480 minutes); thickness 0.35 mm; Standard EN374; pictograms: yes)</li> <li>○ Material: FKM; (thickness 0.4 mm; Standard EN374; pictograms: yes)</li> </ul> </li> <li>• Eye protection: Safety goggles; if there is a risk of splashes (e.g. sampling): face shield <ul style="list-style-type: none"> <li>○ Safety goggles (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> <li>○ Face shield (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> </ul> </li> <li>• Skin and body protection: Wear suitable protective clothing; if there is a risk of large splashes (e.g. transfer): use protective apron. <ul style="list-style-type: none"> <li>○ Safety boots (high shoes): standard: EN13832; pictogram: yes</li> <li>○ Long-sleeved protective clothing: standard: 13034; pictogram: yes</li> <li>○ Protective apron: Standard: EN14605: type 3; pictograms: yes</li> </ul> </li> <li>• Respiratory protection: In case of spraying (not closed system), respiratory protection equipment is required. <ul style="list-style-type: none"> <li>○ Full-face mask (filter type: A, high boiling point organic compound (&gt; 65 °C); condition: aerosols, droplets; standard: EN 140)</li> </ul> </li> <li>• In case of spills/calamities: Face shield, safety boots, long-sleeved protective clothing, protective gloves.</li> </ul>

#### **Conditions of use applicable to all contributing scenarios**

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %
Liquid
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Covers use up to 8 h/day
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
Use suitable eye protection.
<b>Other conditions affecting workers exposure</b>



Indoor use
Assumes process temperature up to 40 °C

### **12.3. Exposure estimation and reference to its source**

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

### **12.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.

## 13. ES 13: Widespread use by professional workers; Various products; Other

### 13.1. Title section

ES name: *Professional use of L-(+)-lactic acid as a reactive processing aid*

Product category: Adhesives, Sealants (PC 1), Air care products (PC 3), Anti-Freeze and De-icing products (PC 4), Biocidal Products (PC 8), Coatings and Paints, Thinners, paint removers (PC 9a), Fillers, putties, plasters, modelling clay (PC 9b), Finger paints (PC 9c), Fertilizers (PC 12), Metal surface treatment products (PC 14), Non-metal-surface treatment products (PC 15), Products such as ph-regulators, flocculants, precipitants, neutralization agents (PC 20), Laboratory Chemicals (PC 21), Lubricants, Greases, Release Products (PC 24), Metal Working Fluids (PC 25), Polishes and Wax Blends (PC 31), Washing and Cleaning Products (PC 35), Welding and soldering products, flux products (PC 38)

Sector of use: Other (SU 0)

<b>Environment</b>	
1: <i>Widespread use of reactive processing aid (no inclusion into or onto article, outdoor)</i>	ERC 8e, ERC 8b
<b>Worker</b>	
2: <i>Chemical production where opportunity for exposure arises</i>	PROC 4
3: <i>Mixing or blending in batch processes</i>	PROC 5
4: <i>Industrial spraying</i>	PROC 7
5: <i>Transfer of substance or mixture at non-dedicated facilities</i>	PROC 8a
6: <i>Transfer of substance or mixture at dedicated facilities</i>	PROC 8b
7: <i>Transfer of substance or mixture into small containers</i>	PROC 9
8: <i>Roller application or brushing</i>	PROC 10
9: <i>Non industrial spraying</i>	PROC 11
10: <i>Treatment of articles by dipping and pouring</i>	PROC 13
11: <i>Tabletting, compression, extrusion, pelletisation, granulation</i>	PROC 14
12: <i>Use as laboratory reagent</i>	PROC 15
13: <i>Using material as fuel sources, limited exposure to un-burned product to be expected</i>	PROC 16
14: <i>Lubrication at high energy conditions in metal working operations</i>	PROC 17
15: <i>General greasing/lubrication at high kinetic energy conditions</i>	PROC 18
16: <i>Hand-mixing with intimate contact and only PPE available</i>	PROC 19
17: <i>Use of functional fluids in small devices</i>	PROC 20
18: <i>High (mechanical) energy work-up of substances bound in /on materials and/or articles</i>	PROC 24
19: <i>Handling of solid inorganic substances at ambient temperature</i>	PROC 26
20: <i>Manual maintenance (cleaning and repair) of machinery</i>	PROC 28

### 13.2. Conditions of use affecting exposure

#### 13.2.1. Control of worker exposure

The substance is classified for serious eye damage and skin corrosion (moderate hazard, respectively) and additionally labelled as EUH071. Implementation of the following RMMs will ensure that risks due to the irritating properties are controlled to a level of no concern:

<b>Risk management measures</b>	
General risk management measures	• Training of staff on good practice.

and advice for operating a closed system:	<ul style="list-style-type: none"> <li>• Good standard of personal hygiene.</li> <li>• Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed</li> </ul>
For handling the substance outside a closed system (e.g. sampling, cleaning, etc.) additional safety measures have to be adopted:	<ul style="list-style-type: none"> <li>• Minimization of staff exposed</li> <li>• Segregation of the emitting process</li> <li>• Effective contaminant extraction</li> <li>• Good standard of general ventilation</li> <li>• Minimization of manual phases</li> <li>• Avoidance of contact with contaminated tools and objects</li> <li>• Regular cleaning of equipment and work area</li> </ul>
Additional risk management measures and advice:	<ul style="list-style-type: none"> <li>• Protective gloves: <ul style="list-style-type: none"> <li>○ Material: Butyl rubber, chloroprene rubber, polyvinylchloride (Permeation 6 (&gt; 480 minutes); thickness 0.5 mm; standard EN374; pictograms: yes);</li> <li>○ Material: Nitrile rubber (permeation 6 (&gt; 480 minutes); thickness 0.35 mm; Standard EN374; pictograms: yes)</li> <li>○ Material: FKM; (thickness 0.4 mm; Standard EN374; pictograms: yes)</li> </ul> </li> <li>• Eye protection: Safety goggles; if there is a risk of splashes (e.g. sampling): face shield <ul style="list-style-type: none"> <li>○ Safety goggles (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> <li>○ Face shield (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> </ul> </li> <li>• Skin and body protection: Wear suitable protective clothing; if there is a risk of large splashes (e.g. transfer): use protective apron. <ul style="list-style-type: none"> <li>○ Safety boots (high shoes): standard: EN13832; pictogram: yes</li> <li>○ Long-sleeved protective clothing: standard: 13034; pictogram: yes</li> <li>○ Protective apron: Standard: EN14605: type 3; pictograms: yes</li> </ul> </li> <li>• Respiratory protection: In case of spraying (not closed system), respiratory protection equipment is required. <ul style="list-style-type: none"> <li>○ Full-face mask (filter type: A, high boiling point organic compound (&gt; 65 °C); condition: aerosols, droplets; standard: EN 140)</li> </ul> </li> <li>• In case of spills/calamities: Face shield, safety boots, long-sleeved protective clothing, protective gloves.</li> </ul>

#### **Conditions of use applicable to all contributing scenarios**

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %
Liquid
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Covers use up to 8 h/day
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
Use suitable eye protection.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40 °C

### **13.3. Exposure estimation and reference to its source**

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

### **13.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.

## 14. ES 14: Widespread use by professional workers; Various products; Various sectors

### 14.1. Title section

ES name: *Professional use of L-(+)-lactic acid in functional fluids*

Product category: Adhesives, Sealants (PC 1), Air care products (PC 3), Anti-Freeze and De-icing products (PC 4), Biocidal Products (PC 8), Coatings and Paints, Thinners, paint removers (PC 9a), Fillers, putties, plasters, modelling clay (PC 9b), Finger paints (PC 9c), Fertilizers (PC 12), Metal surface treatment products (PC 14), Non-metal-surface treatment products (PC 15), Products such as ph-regulators, flocculants, precipitants, neutralization agents (PC 20), Laboratory Chemicals (PC 21), Lubricants, Greases, Release Products (PC 24), Metal Working Fluids (PC 25), Polishes and Wax Blends (PC 31), Washing and Cleaning Products (PC 35), Water treatment chemicals (PC 37), Welding and soldering products, flux products (PC 38)

Sector of use: Other (SU 0), Agriculture, forestry, fishery (SU 1), Manufacture of bulk, large scale chemicals (including petroleum products) (SU 8), Manufacture of fine chemicals (SU 9)

<b>Environment</b>	
1: <i>Widespread use of functional fluid</i>	ERC 9b, ERC 9a
<b>Worker</b>	
2: <i>Formulation in closed batch processes with occasional controlled exposure</i>	PROC 3
3: <i>Chemical production where opportunity for exposure arises</i>	PROC 4
4: <i>Mixing or blending in batch processes</i>	PROC 5
5: <i>Calendering operations</i>	PROC 6
6: <i>Industrial spraying</i>	PROC 7
7: <i>Transfer of substance or mixture at non-dedicated facilities</i>	PROC 8a
8: <i>Transfer of substance or mixture at dedicated facilities</i>	PROC 8b
9: <i>Transfer of substance or mixture into small containers</i>	PROC 9
10: <i>Roller application or brushing</i>	PROC 10
11: <i>Non industrial spraying</i>	PROC 11
12: <i>Treatment of articles by dipping and pouring</i>	PROC 13
13: <i>Tabletting, compression, extrusion, pelletisation, granulation</i>	PROC 14
14: <i>Use as laboratory reagent</i>	PROC 15
15: <i>Using material as fuel sources, limited exposure to un-burned product to be expected</i>	PROC 16
16: <i>Lubrication at high energy conditions in metal working operations</i>	PROC 17
17: <i>General greasing/lubrication at high kinetic energy conditions</i>	PROC 18
18: <i>Hand-mixing with intimate contact and only PPE available</i>	PROC 19
19: <i>Use of functional fluids in small devices</i>	PROC 20
20: <i>Low energy manipulation and handling of substances bound in/on materials or articles</i>	PROC 21
21: <i>High (mechanical) energy work-up of substances bound in /on materials and/or articles</i>	PROC 24
22: <i>Handling of solid inorganic substances at ambient temperature</i>	PROC 26
23: <i>Manual maintenance (cleaning and repair) of machinery</i>	PROC 28

### 14.2. Conditions of use affecting exposure

#### 14.2.1. Control of worker exposure



The substance is classified for serious eye damage and skin corrosion (moderate hazard, respectively) and additionally labelled as EUH071. Implementation of the following RMMs will ensure that risks due to the irritating properties are controlled to a level of no concern:

<b>Risk management measures</b>	
General risk management measures and advice for operating a closed system:	<ul style="list-style-type: none"> <li>• Training of staff on good practice.</li> <li>• Good standard of personal hygiene.</li> <li>• Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed</li> </ul>
For handling the substance outside a closed system (e.g. sampling, cleaning, etc.) additional safety measures have to be adopted:	<ul style="list-style-type: none"> <li>• Minimization of staff exposed</li> <li>• Segregation of the emitting process</li> <li>• Effective contaminant extraction</li> <li>• Good standard of general ventilation</li> <li>• Minimization of manual phases</li> <li>• Avoidance of contact with contaminated tools and objects</li> <li>• Regular cleaning of equipment and work area</li> </ul>
Additional risk management measures and advice:	<ul style="list-style-type: none"> <li>• Protective gloves: <ul style="list-style-type: none"> <li>○ Material: Butyl rubber, chloroprene rubber, polyvinylchloride (Permeation 6 (&gt; 480 minutes); thickness 0.5 mm; standard EN374; pictograms: yes);</li> <li>○ Material: Nitrile rubber (permeation 6 (&gt; 480 minutes); thickness 0.35 mm; Standard EN374; pictograms: yes)</li> <li>○ Material: FKM; (thickness 0.4 mm; Standard EN374; pictograms: yes)</li> </ul> </li> <li>• Eye protection: Safety goggles; if there is a risk of splashes (e.g. sampling): face shield <ul style="list-style-type: none"> <li>○ Safety goggles (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> <li>○ Face shield (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> </ul> </li> <li>• Skin and body protection: Wear suitable protective clothing; if there is a risk of large splashes (e.g. transfer): use protective apron. <ul style="list-style-type: none"> <li>○ Safety boots (high shoes): standard: EN13832; pictogram: yes</li> <li>○ Long-sleeved protective clothing: standard: 13034; pictogram: yes</li> <li>○ Protective apron: Standard: EN14605: type 3; pictograms: yes</li> </ul> </li> <li>• Respiratory protection: In case of spraying (not closed system), respiratory protection equipment is required. <ul style="list-style-type: none"> <li>○ Full-face mask (filter type: A, high boiling point organic compound (&gt; 65 °C); condition: aerosols, droplets; standard: EN 140)</li> </ul> </li> <li>• In case of spills/calamities: Face shield, safety boots, long-sleeved protective clothing, protective gloves.</li> </ul>

#### **Conditions of use applicable to all contributing scenarios**

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %
Liquid
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Covers use up to 8 h/day
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those



described for the hands.; For further specification, refer to section 8 of the SDS.
Use suitable eye protection.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40 °C

### 14.3. Exposure estimation and reference to its source

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

### 14.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.

## 15. ES 15: Widespread use by professional workers; Various products; Various sectors

### 15.1. Title section

ES name: *Professional use of L-(+)-lactic acid for producing articles*

Product category: Adhesives, Sealants (PC 1), Anti-Freeze and De-icing products (PC 4), Biocidal Products (PC 8), Fillers, putties, plasters, modelling clay (PC 9b), Finger paints (PC 9c), Non-metal-surface treatment products (PC 15), Products such as ph-regulators, flocculants, precipitants, neutralization agents (PC 20), Lubricants, Greases, Release Products (PC 24), Polishes and Wax Blends (PC 31)

Sector of use: Manufacture of food products (SU 4), Manufacture of textiles, leather, fur (SU 5), Manufacture of wood and wood products (SU 6a), Manufacture of pulp, paper and paper products (SU 6b), Printing and reproduction of recorded media (SU 7), Manufacture of rubber products (SU 11), Manufacture of plastics products, including compounding and conversion (SU 12), Manufacture of other non-metallic mineral products, e.g. plasters, cement (SU 13), Manufacture of furniture (SU 18)

<b>Environment</b>	
1: <i>Widespread use leading to inclusion into/onto article (outdoor)</i>	ERC 8f
<b>Worker</b>	
2: <i>Chemical production where opportunity for exposure arises</i>	PROC 4
3: <i>Mixing or blending in batch processes</i>	PROC 5
4: <i>Transfer of substance or mixture at non-dedicated facilities</i>	PROC 8a
5: <i>Transfer of substance or mixture at dedicated facilities</i>	PROC 8b
6: <i>Transfer of substance or mixture into small containers</i>	PROC 9
7: <i>Roller application or brushing</i>	PROC 10
8: <i>Non industrial spraying</i>	PROC 11
9: <i>Treatment of articles by dipping and pouring</i>	PROC 13
10: <i>Tabletting, compression, extrusion, pelletisation, granulation</i>	PROC 14
11: <i>Use as laboratory reagent</i>	PROC 15
12: <i>General greasing/lubrication at high kinetic energy conditions</i>	PROC 18
13: <i>Hand-mixing with intimate contact and only PPE available</i>	PROC 19
14: <i>Handling of solid inorganic substances at ambient temperature</i>	PROC 26
15: <i>Manual maintenance (cleaning and repair) of machinery</i>	PROC 28
<b>Subsequent service life exposure scenario(s)</b>	
ES 18: Service life (worker at industrial site); Various articles	
ES 19: Service life (worker at industrial site); Various articles (AC 0, AC 1, AC 7, AC 10, AC 11, AC 13)	
ES 21: Service life (consumers); Various articles	

### 15.2. Conditions of use affecting exposure

#### 15.2.1. Control of worker exposure

The substance is classified for serious eye damage and skin corrosion (moderate hazard, respectively) and additionally labelled as EUH071. Implementation of the following RMMs will ensure that risks due to the irritating properties are controlled to a level of no concern:

<b>Risk management measures</b>	
General risk management measures and advice for operating a closed	<ul style="list-style-type: none"> <li>• Training of staff on good practice.</li> <li>• Good standard of personal hygiene.</li> </ul>

system:	<ul style="list-style-type: none"> <li>Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed</li> </ul>
For handling the substance outside a closed system (e.g. sampling, cleaning, etc.) additional safety measures have to be adopted:	<ul style="list-style-type: none"> <li>Minimization of staff exposed</li> <li>Segregation of the emitting process</li> <li>Effective contaminant extraction</li> <li>Good standard of general ventilation</li> <li>Minimization of manual phases</li> <li>Avoidance of contact with contaminated tools and objects</li> <li>Regular cleaning of equipment and work area</li> </ul>
Additional risk management measures and advice:	<ul style="list-style-type: none"> <li>Protective gloves: <ul style="list-style-type: none"> <li>Material: Butyl rubber, chloroprene rubber, polyvinylchloride (Permeation 6 (&gt; 480 minutes); thickness 0.5 mm; standard EN374; pictograms: yes);</li> <li>Material: Nitrile rubber (permeation 6 (&gt; 480 minutes); thickness 0.35 mm; Standard EN374; pictograms: yes)</li> <li>Material: FKM; (thickness 0.4 mm; Standard EN374; pictograms: yes)</li> </ul> </li> <li>Eye protection: Safety goggles; if there is a risk of splashes (e.g. sampling): face shield <ul style="list-style-type: none"> <li>Safety goggles (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> <li>Face shield (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> </ul> </li> <li>Skin and body protection: Wear suitable protective clothing; if there is a risk of large splashes (e.g. transfer): use protective apron. <ul style="list-style-type: none"> <li>Safety boots (high shoes): standard: EN13832; pictogram: yes</li> <li>Long-sleeved protective clothing: standard: 13034; pictogram: yes</li> <li>Protective apron: Standard: EN14605: type 3; pictograms: yes</li> </ul> </li> <li>Respiratory protection: In case of spraying (not closed system), respiratory protection equipment is required. <ul style="list-style-type: none"> <li>Full-face mask (filter type: A, high boiling point organic compound (&gt; 65 °C); condition: aerosols, droplets; standard: EN 140)</li> </ul> </li> <li>In case of spills/calamities: Face shield, safety boots, long-sleeved protective clothing, protective gloves.</li> </ul>

#### **Conditions of use applicable to all contributing scenarios**

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %
Liquid
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Covers use up to 8 h/day
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
Use suitable eye protection.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40 °C

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### **15.3. Exposure estimation and reference to its source**

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

### **15.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.

## 16. ES 16: Consumer use; Various products

### 16.1. Title section

ES name: *Consumer use (with service life)*

Product category: Adhesives, Sealants (PC 1), Anti-Freeze and De-icing products (PC 4), Biocidal Products (PC 8), Fillers, putties, plasters, modelling clay (PC 9b), Finger paints (PC 9c), Non-metal-surface treatment products (PC 15), Products such as ph-regulators, flocculants, precipitants, neutralization agents (PC 20), Lubricants, Greases, Release Products (PC 24), Polishes and Wax Blends (PC 31), Washing and Cleaning Products (PC 35)

Environment	
1: <i>Widespread use leading to inclusion into/onto article (outdoor)</i>	ERC 8f
Consumer	
2: <i>Adhesives, Sealants</i>	PC 1
3: <i>Anti-Freeze and De-icing products</i>	PC 4
4: <i>Biocidal Products (e.g. Disinfectants, pest control)</i>	PC 8
5: <i>Fillers, Putties</i>	PC 9b
6: <i>Finger Paints</i>	PC 9c
7: <i>Non-metal-surface treatment products</i>	PC 15
8: <i>Products such as ph-regulators, flocculants, precipitants, neutralization agents, other unspecific</i>	PC 20
9: <i>Lubricants, Greases and Release Products</i>	PC 24
10: <i>Polishes and Wax Blends</i>	PC 31
11: <i>Washing and Cleaning Products (including solvent based products)</i>	PC 35
Subsequent service life exposure scenario(s)	
ES 21: Service life (consumers); Various articles	

### 16.2. Conditions of use affecting exposure

#### 16.2.1. Control of consumer exposure: *Adhesives, Sealants (PC 1)*

Product (article) characteristics
Covers concentrations up to 100 %

#### 16.2.2. Control of consumer exposure: *Anti-Freeze and De-icing products (PC 4)*

Product (article) characteristics
Covers concentrations up to 100 %

#### 16.2.3. Control of consumer exposure: *Biocidal Products (e.g. Disinfectants, pest control) (PC 8)*

Product (article) characteristics
Covers concentrations up to 100 %

#### 16.2.4. Control of consumer exposure: *Fillers, Putties (PC 9b)*

Product (article) characteristics
Covers concentrations up to 100 %

#### 16.2.5. Control of consumer exposure: *Finger Paints (PC 9c)*



<b>Product (article) characteristics</b>
Covers concentrations up to 100 %

### **16.2.6. Control of consumer exposure: *Non-metal-surface treatment products (PC 15)***

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %

### **16.2.7. Control of consumer exposure: *Products such as ph-regulators, flocculants, precipitants, neutralization agents, other unspecific (PC 20)***

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %

### **16.2.8. Control of consumer exposure: *Lubricants, Greases and Release Products (PC 24)***

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %

### **16.2.9. Control of consumer exposure: *Polishes and Wax Blends (PC 31)***

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %

### **16.2.10. Control of consumer exposure: *Washing and Cleaning Products (including solvent based products) (PC 35)***

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %

## **16.3. Exposure estimation and reference to its source**

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

## **16.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.

## 17. ES 17: Consumer use; Various products

### 17.1. Title section

ES name: *Consumer use (without service life)*

Product category: Adhesives, Sealants (PC 1), Anti-Freeze and De-icing products (PC 4), Biocidal Products (PC 8), Fillers, putties, plasters, modelling clay (PC 9b), Finger paints (PC 9c), Non-metal-surface treatment products (PC 15), Products such as ph-regulators, flocculants, precipitants, neutralization agents (PC 20), Lubricants, Greases, Release Products (PC 24), Polishes and Wax Blends (PC 31), Washing and Cleaning Products (PC 35)

Environment	
1: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)	ERC 8d, ERC 8a
Consumer	
2: <i>Adhesives, Sealants</i>	PC 1
3: <i>Anti-Freeze and De-icing products</i>	PC 4
4: <i>Biocidal Products (e.g. Disinfectants, pest control)</i>	PC 8
5: <i>Fillers, Putties</i>	PC 9b
6: <i>Finger paints</i>	PC 9c
7: <i>Non-metal-surface treatment products</i>	PC 15
8: <i>Products such as ph-regulators, flocculants, precipitants, neutralization agents, other unspecific</i>	PC 20
9: <i>Lubricants, Greases and Release Products</i>	PC 24
10: <i>Polishes and Wax Blends</i>	PC 31
11: <i>Washing and Cleaning Products (including solvent based products)</i>	PC 35

### 17.2. Conditions of use affecting exposure

#### 17.2.1. Control of consumer exposure: *Adhesives, Sealants (PC 1)*

Product (article) characteristics
Covers concentrations up to 100 %

#### 17.2.2. Control of consumer exposure: *Anti-Freeze and De-icing products (PC 4)*

Product (article) characteristics
Covers concentrations up to 100 %

#### 17.2.3. Control of consumer exposure: *Biocidal Products (e.g. Disinfectants, pest control) (PC 8)*

Product (article) characteristics
Covers concentrations up to 100 %

#### 17.2.4. Control of consumer exposure: *Fillers, Putties (PC 9b)*

Product (article) characteristics
Covers concentrations up to 100 %

#### 17.2.5. Control of consumer exposure: *Finger paints (PC 9c)*

Product (article) characteristics





Covers concentrations up to 100 %
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### **17.2.6. Control of consumer exposure: *Non-metal-surface treatment products (PC 15)***

<b>Product (article) characteristics</b>
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Covers concentrations up to 100 %
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### **17.2.7. Control of consumer exposure: *Products such as ph-regulators, flocculants, precipitants, neutralization agents, other unspecific (PC 20)***

<b>Product (article) characteristics</b>
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Covers concentrations up to 100 %
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### **17.2.8. Control of consumer exposure: *Lubricants, Greases and Release Products (PC 24)***

<b>Product (article) characteristics</b>
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Covers concentrations up to 100 %
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### **17.2.9. Control of consumer exposure: *Polishes and Wax Blends (PC 31)***

<b>Product (article) characteristics</b>
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Covers concentrations up to 100 %
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### **17.2.10. Control of consumer exposure: *Washing and Cleaning Products (including solvent based products) (PC 35)***

<b>Product (article) characteristics</b>
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Covers concentrations up to 100 %
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## **17.3. Exposure estimation and reference to its source**

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

## **17.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.

## 18. ES 18: Service life (worker at industrial site); Various articles

### 18.1. Title section

ES name: *Industrial processing of articles*

Article category: Other (AC 0), Vehicles (AC 1), Metal articles (AC 7), Rubber articles (AC 10), Wood articles (AC 11), Plastic articles (AC 13)

Environment	
1: Processing of articles at industrial sites with low release	ERC 12b, ERC 12a
Worker	
2: Low energy manipulation and handling of substances bound in/on materials and/or articles	PROC 21
3: <i>High (mechanical) energy work-up of substances bound in /on materials and/or articles</i>	PROC 24
4: <i>Manual maintenance (cleaning and repair) of machinery</i>	PROC 0
Exposure scenario of the uses leading to the inclusion of the substance into the article	
ES 7: Use at industrial sites; Various products (PC 1, PC 9a, PC 18, PC 20, PC 23, PC 26, PC 32, PC 34); Various sectors (SU 4, SU 5, SU 6a, SU 6b, SU 7, SU 11, SU 12, SU 13, SU 18)	
ES 11: Use at industrial sites; Other (PC 0); Building and construction work (SU 19)	
ES 15: Widespread use by professional workers; Various products; Various sectors	

### 18.2. Conditions of use affecting exposure

#### 18.2.1. Control of worker exposure

The substance is classified for serious eye damage and skin corrosion (moderate hazard, respectively) and additionally labelled as EUH071. Implementation of the following RMMs will ensure that risks due to the irritating properties are controlled to a level of no concern:

Risk management measures	
General risk management measures and advice for operating a closed system:	<ul style="list-style-type: none"> <li>• Training of staff on good practice.</li> <li>• Good standard of personal hygiene.</li> <li>• Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed</li> </ul>
For handling the substance outside a closed system (e.g. sampling, cleaning, etc.) additional safety measures have to be adopted:	<ul style="list-style-type: none"> <li>• Minimization of staff exposed</li> <li>• Segregation of the emitting process</li> <li>• Effective contaminant extraction</li> <li>• Good standard of general ventilation</li> <li>• Minimization of manual phases</li> <li>• Avoidance of contact with contaminated tools and objects</li> <li>• Regular cleaning of equipment and work area</li> </ul>
Additional risk management measures and advice:	<ul style="list-style-type: none"> <li>• Protective gloves: <ul style="list-style-type: none"> <li>○ Material: Butyl rubber, chloroprene rubber, polyvinylchloride (Permeation 6 (&gt; 480 minutes); thickness 0.5 mm; standard EN374; pictograms: yes);</li> <li>○ Material: Nitrile rubber (permeation 6 (&gt; 480 minutes); thickness 0.35 mm; Standard EN374; pictograms: yes)</li> <li>○ Material: FKM; (thickness 0.4 mm; Standard EN374;</li> </ul> </li> </ul>

	<p style="text-align: center;">pictograms: yes)</p> <ul style="list-style-type: none"> <li>• Eye protection: Safety goggles; if there is a risk of splashes (e.g. sampling): face shield <ul style="list-style-type: none"> <li>○ Safety goggles (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> <li>○ Face shield (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> </ul> </li> <li>• Skin and body protection: Wear suitable protective clothing; if there is a risk of large splashes (e.g. transfer): use protective apron. <ul style="list-style-type: none"> <li>○ Safety boots (high shoes): standard: EN13832; pictogram: yes</li> <li>○ Long-sleeved protective clothing: standard: 13034; pictogram: yes</li> <li>○ Protective apron: Standard: EN14605: type 3; pictograms: yes</li> </ul> </li> <li>• Respiratory protection: In case of spraying (not closed system), respiratory protection equipment is required. <ul style="list-style-type: none"> <li>○ Full-face mask (filter type: A, high boiling point organic compound (&gt; 65 °C); condition: aerosols, droplets; standard: EN 140)</li> </ul> </li> <li>• In case of spills/calamities: Face shield, safety boots, long-sleeved protective clothing, protective gloves.</li> </ul>
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#### **Conditions of use applicable to all contributing scenarios**

<b>Product (article) characteristics</b>
Liquid
Covers concentrations up to 100 %
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Covers use up to 8 h/day
<b>Technical and organisational conditions and measures</b>
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
Use suitable eye protection.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40 °C

### **18.3. Exposure estimation and reference to its source**

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

### **18.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.

## 19. ES 19: Service life (worker at industrial site); Various articles (AC 0, AC 1, AC 7, AC 10, AC 11, AC 13)

### 19.1. Title section

ES name: *Industrial use of articles*

Article category: Other (AC 0), Vehicles (AC 1), Metal articles (AC 7), Rubber articles (AC 10), Wood articles (AC 11), Plastic articles (AC 13)

Environment	
1: <i>Use of articles at industrial sites with low release</i>	ERC 12c
Worker	
2: <i>Low energy manipulation and handling of substances bound in/on materials or articles</i>	PROC 21
3: <i>Manual maintenance (cleaning and repair) of machinery</i>	PROC 0
Exposure scenario of the uses leading to the inclusion of the substance into the article	
ES 7: Use at industrial sites; Various products (PC 1, PC 9a, PC 18, PC 20, PC 23, PC 26, PC 32, PC 34); Various sectors (SU 4, SU 5, SU 6a, SU 6b, SU 7, SU 11, SU 12, SU 13, SU 18)	
ES 15: Widespread use by professional workers; Various products; Various sectors	

### 19.2. Conditions of use affecting exposure

#### 19.2.1. Control of worker exposure

The substance is classified for serious eye damage and skin corrosion (moderate hazard, respectively) and additionally labelled as EUH071. Implementation of the following RMMs will ensure that risks due to the irritating properties are controlled to a level of no concern:

Risk management measures	
General risk management measures and advice for operating a closed system:	<ul style="list-style-type: none"> <li>• Training of staff on good practice.</li> <li>• Good standard of personal hygiene.</li> <li>• Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed</li> </ul>
For handling the substance outside a closed system (e.g. sampling, cleaning, etc.) additional safety measures have to be adopted:	<ul style="list-style-type: none"> <li>• Minimization of staff exposed</li> <li>• Segregation of the emitting process</li> <li>• Effective contaminant extraction</li> <li>• Good standard of general ventilation</li> <li>• Minimization of manual phases</li> <li>• Avoidance of contact with contaminated tools and objects</li> <li>• Regular cleaning of equipment and work area</li> </ul>
Additional risk management measures and advice:	<ul style="list-style-type: none"> <li>• Protective gloves: <ul style="list-style-type: none"> <li>○ Material: Butyl rubber, chloroprene rubber, polyvinylchloride (Permeation 6 (&gt; 480 minutes); thickness 0.5 mm; standard EN374; pictograms: yes);</li> <li>○ Material: Nitrile rubber (permeation 6 (&gt; 480 minutes); thickness 0.35 mm; Standard EN374; pictograms: yes)</li> <li>○ Material: FKM; (thickness 0.4 mm; Standard EN374; pictograms: yes)</li> </ul> </li> <li>• Eye protection: Safety goggles; if there is a risk of splashes (e.g. sampling): face shield <ul style="list-style-type: none"> <li>○ Safety goggles (use: aerosols, droplets; standard: EN166;</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ pictograms: yes</li> <li>○ Face shield (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> <li>● Skin and body protection: Wear suitable protective clothing; if there is a risk of large splashes (e.g. transfer): use protective apron. <ul style="list-style-type: none"> <li>○ Safety boots (high shoes): standard: EN13832; pictogram: yes</li> <li>○ Long-sleeved protective clothing: standard: 13034; pictogram: yes</li> <li>○ Protective apron: Standard: EN14605: type 3; pictograms: yes</li> </ul> </li> <li>● Respiratory protection: In case of spraying (not closed system), respiratory protection equipment is required. <ul style="list-style-type: none"> <li>○ Full-face mask (filter type: A, high boiling point organic compound (&gt; 65 °C); condition: aerosols, droplets; standard: EN 140)</li> </ul> </li> <li>● In case of spills/calamities: Face shield, safety boots, long-sleeved protective clothing, protective gloves.</li> </ul>
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**Conditions of use applicable to all contributing scenarios**

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %
Liquid
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Covers use up to 8 h/day
<b>Technical and organisational conditions and measures</b>
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40 °C

### 19.3. Exposure estimation and reference to its source

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

### 19.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.

## 20. ES 20: Service life (professional worker); Various articles (AC 4a, AC 4g)

### 20.1. Title section

ES name: *Use of articles/materials by professionals (high/low release)*

Article category: Stone, plaster, cement, glass and ceramic articles: Large surface area articles (AC 4a), Other articles made of stone, plaster, cement, glass or ceramic (AC 4g)

Environment	
1: <i>Use of articles by professionals</i>	ERC 10b, ERC 10a, ERC 11a, ERC 11b
Worker	
2: <i>Low energy manipulation and handling of substances bound in/on materials or articles</i>	PROC 21
3: <i>High (mechanical) energy work-up of substances bound in /on materials and/or articles</i>	PROC 24
Exposure scenario of the uses leading to the inclusion of the substance into the article	
ES 7: Use at industrial sites; Various products (PC 1, PC 9a, PC 18, PC 20, PC 23, PC 26, PC 32, PC 34); Various sectors (SU 4, SU 5, SU 6a, SU 6b, SU 7, SU 11, SU 12, SU 13, SU 18)	
ES 11: Use at industrial sites; Other (PC 0); Building and construction work (SU 19)	

### 20.2. Conditions of use affecting exposure

#### 20.2.1. Control of worker exposure

The substance is classified for serious eye damage and skin corrosion (moderate hazard, respectively) and additionally labelled as EUH071. Implementation of the following RMMs will ensure that risks due to the irritating properties are controlled to a level of no concern:

Risk management measures	
General risk management measures and advice for operating a closed system:	<ul style="list-style-type: none"> <li>• Training of staff on good practice.</li> <li>• Good standard of personal hygiene.</li> <li>• Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed</li> </ul>
For handling the substance outside a closed system (e.g. sampling, cleaning, etc.) additional safety measures have to be adopted:	<ul style="list-style-type: none"> <li>• Minimization of staff exposed</li> <li>• Segregation of the emitting process</li> <li>• Effective contaminant extraction</li> <li>• Good standard of general ventilation</li> <li>• Minimization of manual phases</li> <li>• Avoidance of contact with contaminated tools and objects</li> <li>• Regular cleaning of equipment and work area</li> </ul>
Additional risk management measures and advice:	<ul style="list-style-type: none"> <li>• Protective gloves: <ul style="list-style-type: none"> <li>○ Material: Butyl rubber, chloroprene rubber, polyvinylchloride (Permeation 6 (&gt; 480 minutes); thickness 0.5 mm; standard EN374; pictograms: yes);</li> <li>○ Material: Nitrile rubber (permeation 6 (&gt; 480 minutes); thickness 0.35 mm; Standard EN374; pictograms: yes)</li> <li>○ Material: FKM; (thickness 0.4 mm; Standard EN374; pictograms: yes)</li> </ul> </li> <li>• Eye protection: Safety goggles; if there is a risk of splashes (e.g.</li> </ul>

	<p>sampling): face shield</p> <ul style="list-style-type: none"> <li>○ Safety goggles (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> <li>○ Face shield (use: aerosols, droplets; standard: EN166; pictograms: yes)</li> </ul> <ul style="list-style-type: none"> <li>• Skin and body protection: Wear suitable protective clothing; if there is a risk of large splashes (e.g. transfer): use protective apron. <ul style="list-style-type: none"> <li>○ Safety boots (high shoes): standard: EN13832; pictogram: yes</li> <li>○ Long-sleeved protective clothing: standard: 13034; pictogram: yes</li> <li>○ Protective apron: Standard: EN14605: type 3; pictograms: yes</li> </ul> </li> <li>• Respiratory protection: In case of spraying (not closed system), respiratory protection equipment is required. <ul style="list-style-type: none"> <li>○ Full-face mask (filter type: A, high boiling point organic compound (&gt; 65 °C); condition: aerosols, droplets; standard: EN 140)</li> </ul> </li> <li>• In case of spills/calamities: Face shield, safety boots, long-sleeved protective clothing, protective gloves.</li> </ul>
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**Conditions of use applicable to all contributing scenarios**

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %
Liquid
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>
Covers use up to 8 h/day
<b>Technical and organisational conditions and measures</b>
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
Use suitable eye protection.
<b>Other conditions affecting workers exposure</b>
Indoor use
Assumes process temperature up to 40 °C

### 20.3. Exposure estimation and reference to its source

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

### 20.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.

## 21. ES 21: Service life (consumers); Various articles

### 21.1. Title section

ES name: *Use of articles by consumers (high release)*

Article category: Vehicles (AC 1), Machinery, mechanical appliances, electrical/electronic articles (AC 2), Stone, plaster, cement, glass and ceramic articles: Large surface area articles (AC 4a), Other articles made of stone, plaster, cement, glass or ceramic (AC 4g), Metal articles (AC 7), Rubber articles (AC 10), Wood articles (AC 11), Plastic articles (AC 13)

Environment	
1: Widespread use of articles with high or intended release (outdoor)	ERC 10b, ERC 10a, ERC 11a, ERC 11b
Consumer	
2: <i>Vehicles</i>	AC 1
3: <i>Machinery, mechanical appliances, electrical/electronic articles</i>	AC 2
4: <i>Stone, plaster, cement, glass and ceramic articles: Large surface area articles</i>	AC 4a
5: <i>Concrete containing lactic acid as additive</i>	AC 4g
6: <i>Metal articles</i>	AC 7
7: <i>Rubber articles</i>	AC 10
8: <i>Wood articles</i>	AC 11
9: <i>Plastic articles</i>	AC 13
Exposure scenario of the uses leading to the inclusion of the substance into the article	
ES 7: Use at industrial sites; Various products (PC 1, PC 9a, PC 18, PC 20, PC 23, PC 26, PC 32, PC 34); Various sectors (SU 4, SU 5, SU 6a, SU 6b, SU 7, SU 11, SU 12, SU 13, SU 18)	
ES 11: Use at industrial sites; Other (PC 0); Building and construction work (SU 19)	
ES 15: Widespread use by professional workers; Various products; Various sectors	
ES 16: Consumer use; Various products	

### 21.2. Conditions of use affecting exposure

#### 21.2.1. Control of consumer exposure: *Vehicles* (AC 1)

Product (article) characteristics
Covers concentrations up to 100 %

#### 21.2.2. Control of consumer exposure: *Machinery, mechanical appliances, electrical/electronic articles* (AC 2)

Product (article) characteristics
Covers concentrations up to 100 %

#### 21.2.3. Control of consumer exposure: *Stone, plaster, cement, glass and ceramic articles: Large surface area articles* (AC 4a)

Product (article) characteristics
Covers concentrations up to 100 %

#### 21.2.4. Control of consumer exposure: *Concrete containing lactic acid as additive* (AC 4g)



<b>Product (article) characteristics</b>
Covers concentrations up to 100 %

### **21.2.5. Control of consumer exposure: *Metal articles (AC 7)***

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %

### **21.2.6. Control of consumer exposure: *Rubber articles (AC 10)***

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %

### **21.2.7. Control of consumer exposure: *Wood articles (AC 11)***

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %

### **21.2.8. Control of consumer exposure: *Plastic articles (AC 13)***

<b>Product (article) characteristics</b>
Covers concentrations up to 100 %

## **21.3. Exposure estimation and reference to its source**

A quantitative risk assessment is not required based on the hazard profile of the substance (only acute local effects applicable).

## **21.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

Scaling is not considered appropriate for this substance as no quantitative risk assessment was performed and a generic set of risk management measures is proposed.