FICHE DE DONNÉES DE SÉCURITÉ
(conformément au RÈGLEMENT (UE) 2020/878)

0010-0010

RUBRIQUE 1: IDENTIFICATION DE LA SUBSTANCE/DU MÉLANGE ET DE LA SOCIÉTÉ/L'ENTREPRISE.

1.1 Identificateur de produit.

Nom du produit: 0010
Code du produit: 0010
Nom chimique: hydrogénosulfate de sodium
N. Index: 016-046-00-X
N. CAS: 7681-38-1
N. CE: 231-665-7
N. d'enregistrement: 01-2119552465-36-XXXX

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

régulateur de pH

Usages non recommandés:
Usages différents de ceux recommandés.
Les scénarios d'exposition couvrant les utilisations se trouvent dans l'annexe.

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

Entreprise: **FLUIDRA COMERCIAL PORTUGAL**
Adresse: Rua Alfredo Silva nº41
Ville: 2786-656 São Domingos de Rana
Province ou région: PORTUGAL
Numéro de Téléphone: Tef. +351 214 444 720
Fax: +34 93 713 41 11
E-mail: fds@inquide.com
Web: www.astralpool.com

1.4 Numéro d'appel d'urgence: (Disponible seulement en horaire de bureaux; Lundi-Vendredi; 08:00-18:00)
Giftnotrufzentrale Berlin : Telefon: +49 (0) 30 / 30 686 790
Anti poisoning centre:
FRANCE (Paris): 01 40 05 48 48
FRANCE (Tolousse): 05 61 77 74 47
FRANCE (Marseille): 04 91 75 25 25
ORFILA (INRS) : + 33 (0)1 45 42 59 59
BELGIQUE (Brussel): (+32) 070 245 245
NVIC: +31 (0)88 755 8000

RUBRIQUE 2: IDENTIFICATION DES DANGERS.

2.1 Classification de la substance ou du mélange.
Conformément au Règlement (CE) No 1272/2008:
Eye Dam. 1 : Provoque de graves lésions des yeux.

2.2 Éléments d'étiquetage.
<u>Étiquetage conformément au Règlement (CE) No 1272/2008:</u>
Pictogrammes:



Mention d'avertissement:
Danger
Mentions de danger:

-Continue à la page suivante.-

H318 Provoque de graves lésions des yeux.

Conseils de prudence:
P101 En cas de consultation d'un médecin, garder à disposition le récipient ou l'étiquette.
P102 Tenir hors de portée des enfants.
P103 Lire attentivement et bien respecter toutes les instructions.
P280 Portez des gants et un masque.
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.
P301+P310 EN CAS D'INGESTION: appeler immédiatement un CENTRE ANTIPOISON ou un médecin.
P501 Éliminer le contenu et/ou le récipient conformément à la réglementation sur les déchets dangereux.

Contient:
hydrogénosulfate de sodium

2.3 Autres dangers.

La substance n'est pas PBT
La substance n'est pas vPvB
La substance ne posséde pas de propriété d'altération endocrinien.

En conditions normales d'utilisation et dans sa forme originale, le produit ne présente pas d'autres dangers pour la santé et pour l'environnement.

RUBRIQUE 3: COMPOSITION/INFORMATIONS SUR LES COMPOSANTS.

3.1 Substances.

Identifiants	Nom	Concentration	(*)Classification Règlement (CE) No 1272/2008	
			Classification	Limites de concentration spécifiques et Estimation de la toxicité aiguë
Index No: 016-046-00-X CAS No: 7681-38-1 CE No: 231-665-7	hydrogénosulfate de sodium	3 - 100 %	Eye Dam. 1, H318	-

3.2 Mélanges.
Pas Applicable.

RUBRIQUE 4: PREMIERS SECOURS.

4.1 Description des mesures de premiers secours.
En cas de doute ou si les symptômes persistent, demander l'assistance d'un médecin. Ne rien administrer par voie orale à une personne inconsciente.

En cas d'inhalation.
Mettre la victime de l'accident à l'air libre, la maintenir au chaud et en position de repos, si sa respiration est irrégulière ou s'interrompt, pratiquer sur cette dernière la technique de la respiration artificielle.

En cas de contact avec les yeux.
Rincer abondamment les yeux à l'eau claire et fraîche, pendant au moins 10 minutes, tout en étirant régulièrement les paupières vers le haut et demander l'aide d'un médecin. Ne pas permettre à la personne de se frotter l'œil affecté.

En cas de contact avec la peau.
Retirer les vêtements souillés. Nettoyer vigoureusement la peau avec de l'eau et du savon ou tout produit nettoyant adapté. NE JAMAIS utiliser de solvants ou diluants.

-Continue à la page suivante.-

En cas d'ingestion.
En cas d'ingestion, consulter immédiatement un médecin. Maintenir la victime en position de repos. NE JAMAIS provoquer le vomissement.

4.2 Principaux symptômes et effets, aigus et différés.
Produit corrosif, tout contact avec les yeux ou avec la peau peut provoquer des brûlures, l'ingestion ou l'inhalation peuvent provoquer des blessures internes. Si cela se produit, consulter immédiatement un médecin.
Le contact avec les yeux peut causer des dommages irréversibles.

4.3 Indication des éventuels soins médicaux immédiats et traitements particuliers nécessaires.
Consultez immédiatement un médecin. Ne rien administrer par voie orale à une personne inconsciente. Ne pas se faire vomir. Si la personne vomit, liberez les voies aériennes. Couvrir avec un pansement stérile sec. Protéger la zone affectée de la friction ou pression.

RUBRIQUE 5: MESURES DE LUTTE CONTRE L'INCENDIE.

Le produit N'EST PAS classé comme inflammable, en cas d'incendie il est recommandé d'appliquer les mesures suivantes:

5.1 Moyens d'extinction.
Moyens d'extinction appropriés:
Extincteur de type poudre ou CO2. En cas d'incendies plus importants il est aussi possible d'utiliser de la mousse résistante à l'alcool ou pulvériser de l'eau.

Moyens d'extinction inappropriés:
Pour l'extinction ne jamais utiliser un jet direct d'eau. En presence de tension électrique ne pas utiliser de l'eau ou de la mousse comme moyen d'extinction.

5.2 Dangers particuliers résultant de la substance ou du mélange.
Risques particuliers.
L'exposition aux substances produites suite à la combustion ou à la décomposition peut être dangereuse pour la santé.

5.3 Conseils aux pompiers.
Rafraîchir par pulvérisation d'eau tout réservoir, citerne ou récipient proche du feu ou de toute autre source de chaleur. Tenir compte de la direction du vent. Veiller à ce que les produits utilisés lors de l'extinction d'un incendie ne se déversent pas dans les systèmes d'évacuation d'eau, les égouts ou dans un cours d'eau.

Équipement de protection anti-incendies.
En fonction de la magnitude ou de l'importance de l'incendie, l'utilisation de combinaisons de protection thermique, d'appareils de respiration individuels, de gants, de lunettes de protection ou de masques anatomiques faciaux et de bottes peut s'avérer nécessaire.

RUBRIQUE 6: MESURES À PRENDRE EN CAS DE DISPERSION ACCIDENTELLE.

6.1 Précautions individuelles, équipement de protection et procédures d'urgence.
Pour tout contrôle d'exposition et mesures de protection individuelle, voir rubrique 8.

6.2 Précautions pour la protection de l'environnement.
Le produit n'est pas classé comme dangereux pour l'environnement, éviter dans la mesure du possible de le déverser.

6.3 Méthodes et matériel de confinement et de nettoyage.
Retenir et récupérer le produit déversé avec un matériau absorbant inerte (terre, sable, vermiculite, terre de diatomée...) et nettoyer immédiatement la zone avec un décontaminant approprié.
Déposer les déchets dans des récipients fermés et adaptés en vue de leur élimination, conformément aux normes locales et nationales (voir rubrique 13).

6.4 Référence à d'autres rubriques.
Pour tout contrôle d'exposition et mesures de protection individuelle, voir rubrique 8.
Pour l'ultérieure élimination des résidus, se reporter aux recommandations décrites dans la rubrique 13.

-Continue à la page suivante.-

RUBRIQUE 7: MANIPULATION ET STOCKAGE.

7.1 Précautions à prendre pour une manipulation sans danger.
Pour la protection personnelle se reporter à la section 8.
Il est formellement interdit de fumer, manger ou boire dans la zone d'application du produit.
Respecter la législation relative à la Sécurité et à l'Hygiène dans le cadre du travail.
Ne jamais utiliser la pression pour vider les containers, ces derniers n'ayant pas été conçus pour résister à la pression. Conserver le produit dans un récipient de même matériau que le récipient ou container original.

7.2 Conditions d'un stockage sûr, y compris d'éventuelles incompatibilités.
Magasiner le produit en accord avec la législation locale correspondante. Tenir compte des indications portées sur l'étiquette. Conserver les containers entre 5 et 25 ºC, dans un endroit sec et bien aéré, à l'écart de toute source de chaleur et protégé de la lumière du soleil. Garder à l'écart de toute flamme. Éloigner de tout agent oxydant ou matériau hautement acide ou alcalin. Ne pas fumer. Refuser l'accès au personnel non autorisé. Une fois ouvert, tout container doit être précautionnement refermé et positionné verticalement afin d'éviter toute chute ou renversement.

Le produit n'est pas affecté par la Directive 2012/18/UE (SEVESO III).

7.3 Utilisation(s) finale(s) particulière(s).
Aucune utilisation particulière

RUBRIQUE 8: CONTRÔLES DE L'EXPOSITION/PROTECTION INDIVIDUELLE.

8.1 Paramètres de contrôle.

Le produit NE contient PAS de substances avec des Valeurs Limites Environnementale d'Exposition Professionnelle.Le produit ne contient pas de substances avec des Valeurs Limites Biologiques.
8.2 Contrôles de l'exposition.

Mesures d'ordre technique:
Prévoir un système d'aération adapté, au moyen de l'installation d'une unité d'extraction- ventilation locale ainsi que d'un système général d'extraction.

Concentration:	**100 %**
Utilisation(s):	**régulateur de pH**
Protection respiratoire:	
Si l'on applique les mesures techniques recommandées, il n'est pas nécessaire de porter un équipement de protection individuelle.	
Protection des mains:	
Si le produit est manipulé correctement, il n'est pas nécessaire de porter un équipement de protection individuelle.	
Protection des yeux:	
Si le produit est manipulé correctement, il n'est pas nécessaire de porter un équipement de protection individuelle.	
Protection de la peau:	
PPE:	Chaussures de travail
Caractéristiques:	Marquage «CE» Catégorie II.
Normes CEN:	EN ISO 13287, EN 20347
Maintenance:	Ces articles s'adaptent à la forme du pied du premier utilisateur. C'est pour cette raison, mais aussi pour des questions d'hygiène qu'il faut éviter qu'une autre personne les réutilise.
Observations:	Les chaussures de travail à usage professionnel incorporent des éléments de protection destinés à protéger l'utilisateur contre des blessures qui peuvent provoquer des accidents. Il faut contrôler quelles tâches et quelles activités sont adaptées à ces chaussures.

RUBRIQUE 9: PROPRIÉTÉS PHYSIQUES ET CHIMIQUES.

9.1 Informations sur les propriétés physiques et chimiques essentielles.

-Continue à la page suivante.-

État physique: Solid
Couleur: Blanc / jaune
Odeur: Inodore
Seuil olfactif: Non applicable/Non disponible en raison de la nature/des propriétés du produit.
Point de fusion: 180 ºC
Point de congélation: Non applicable/Non disponible en raison de la nature/des propriétés du produit.
Point d'ébullition ou point initial d'ébullition et intervalle d'ébullition: >200 ºC
Inflammabilité: Non applicable/Non disponible en raison de la nature/des propriétés du produit.
Limites inférieure d'explosion: Non applicable/Non disponible en raison de la nature/des propriétés du produit.
Limites supérieure d'explosion: Non applicable/Non disponible en raison de la nature/des propriétés du produit.
Point d'éclair: Non applicable/Non disponible en raison de la nature/des propriétés du produit.
Température d'auto-inflammation: Non applicable/Non disponible en raison de la nature/des propriétés du produit.
Température de décomposition: ES ºC
pH: 1 - 1,2 (20%)
Viscosité cinématique: Non applicable/Non disponible en raison de la nature/des propriétés du produit.
Solubilité: Non applicable/Non disponible en raison de la nature/des propriétés du produit.
Hydro solubilité: 1080 g/l (20 ºC)
Liposolubilité: Non applicable/Non disponible en raison de la nature/des propriétés du produit.
Coefficient de partage n-octanol/eau (valeur log): Non applicable/Non disponible en raison de la nature/des propriétés du produit.
Pression de vapeur: Non applicable/Non disponible en raison de la nature/des propriétés du produit.
Densité absolue: Non applicable/Non disponible en raison de la nature/des propriétés du produit.
Densité relative: 1.4 - 1.45
Densité de vapeur relative: Non applicable/Non disponible en raison de la nature/des propriétés du produit.
Caractéristiques des particules: Non applicable/Non disponible en raison de la nature/des propriétés du produit.

9.2 Autres informations.
Viscosité: Non applicable/Non disponible en raison de la nature/des propriétés du produit.
Propriétés explosives: Non applicable/Non disponible en raison de la nature/des propriétés du produit.
Propriétés comburantes: No
Point de goutte: Non applicable/Non disponible en raison de la nature/des propriétés du produit.
Scintillation: Non applicable/Non disponible en raison de la nature/des propriétés du produit.

RUBRIQUE 10: STABILITÉ ET RÉACTIVITÉ.

10.1 Réactivité.
Le produit ne présente pas de danger par leur réactivité.

10.2 Stabilité chimique.
Instable en contact avec:
- Bases

10.3 Possibilité de réactions dangereuses.
Peut produire une neutralisation en étant en contact avec des bases.

10.4 Conditions à éviter.
- Eviter le contact avec les bases

10.5 Matières incompatibles.
Eviter les matières suivantes :
- Bases

10.6 Produits de décomposition dangereux.
Selon les conditions d'utilisation, peuvent se générer les produits suivants :
- Vapeurs ou gaz corrosifs

RUBRIQUE 11: INFORMATIONS TOXICOLOGIQUES.

11.1 Informations sur les classes de danger telles que définies dans le règlement (CE) no 1272/2008.
Les projections du produit dans les yeux peuvent provoquer des irritations et causer des dommages réversibles.
Information Toxicologique.

-Continue à la page suivante.-

Nom	Toxicité aigue			
	Type	Essai	Espèce	Valeur
hydrogénosulfate de sodium CAS No: 7681-38-1 EC No: 231-665-7	Oral	LD50	Rat	2140 mg/kg
	Cutané			
	Inhalation	LD50	Rat	>2.4 mg/l (4 h)

a) toxicité aiguë;
Données non concluantes pour la classification.

b) corrosion cutanée/irritation cutanée;
Données non concluantes pour la classification.

c) lésions oculaires graves/irritation oculaire;
Produit classé:
Lésions oculaires graves, Catégorie 1: Provoque de graves lésions des yeux.

d) sensibilisation respiratoire ou cutanée;
Données non concluantes pour la classification.

e) mutagénicité sur les cellules germinales;
Données non concluantes pour la classification.

f) cancérogénicité;
Données non concluantes pour la classification.

g) toxicité pour la reproduction;
Données non concluantes pour la classification.

h) toxicité spécifique pour certains organes cibles - exposition unique;
Données non concluantes pour la classification.

i) toxicité spécifique pour certains organes cibles – exposition répétée;
Données non concluantes pour la classification.

j) danger par aspiration.
Données non concluantes pour la classification.

11.2 Informations sur les autres dangers.
Propriétés perturbant le système endocrinien
Ce produit ne contient pas de composants ayant des propriétés perturbant le système endocrinien avec des effets sur la santé humaine.
Autres informations
Il n'existe pas d'information disponible sur d'autres effets indésirables sur la santé.

RUBRIQUE 12: INFORMATIONS ÉCOLOGIQUES.

12.1 Toxicité.

Nom	Écotoxicité			
	Type	Essai	Espèce	Valeur
hydrogénosulfate de sodium CAS No: 7681-38-1 EC No: 231-665-7	Poissons	LC50	Fish	7960 mg/l (96h)
	Invertébrés aquatiques	LC50	Daphnia	1766 mg/l (48 h)
	Plantes aquatiques	LC50	Algae	1900 mg/l (120 h)

12.2 Persistance et dégradabilité.

-Continue à la page suivante.-

Il n'y a pas d'information sur la biodégradabilité.
Il n'y a pas d'information sur la dégradabilité.
Aucune information n'est disponible sur la persistance et la dégradabilité du produit.

12.3 Potentiel de bioaccumulation.
Aucune information n'est disponible sur la bioaccumulation.

12.4 Mobilité dans le sol.
Aucune information n'est disponible sur la mobilité dans le sol.
Éviter tout déversement dans les égouts ou les cours d'eau.
Éviter qu'il ne pénètre dans le sol.

12.5 Résultats des évaluations PBT et vPvB.
Aucune information n'est disponible sur les résultats de l'évaluation PBT et vPvB du produit.

12.6 Propriétés perturbant le système endocrinien.
Ce produit ne contient pas de components avec des propriétés propriétés perturbant le système endocrinien dans l'environnement.

12.7 Autres effets néfastes.
Aucune information n'est disponible sur d'autres effets néfastes pour l'environnement.

RUBRIQUE 13: CONSIDÉRATIONS RELATIVES À L'ÉLIMINATION.

13.1 Méthodes de traitement des déchets.
Il est interdit de le déverser dans les égouts ou cours d'eau. Les résidus et containers vides doivent être manipulés et éliminés en accord avec la législation locale / nationale correspondante en vigueur.
Suivre les dispositions de la Directive 2008/98/CE relative à la gestion des déchets.

RUBRIQUE 14: INFORMATIONS RELATIVES AU TRANSPORT.

Transport non-dangereux. En cas d'accident et de renversement du produit, procéder conformément au point 6.

14.1 Numéro ONU ou numéro d'identification.
Transport non-dangereux.

14.2 Désignation officielle de transport de l'ONU.
Description:
ADR/RID: Transport non-dangereux.
IMDG: Transport non-dangereux.
OACI/IATA: Transport non-dangereux.

14.3 Classe(s) de danger pour le transport.
Transport non-dangereux.

14.4 Groupe d'emballage.
Transport non-dangereux.

14.5 Dangers pour l'environnement.
Transport non-dangereux.
Transport par bateau, FEm – Fiches d'urgence (F – Incendie, S – Dispersions): Pas Applicable.

14.6 Précautions particulières à prendre par l'utilisateur.
Transport non-dangereux.

14.7 Transport maritime en vrac conformément aux instruments de l'OMI.
Transport non-dangereux.

-Continue à la page suivante.-

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.
Le produit n'est pas affecté par le Règlement (CE) no 1005/2009 du Parlement européen et du Conseil du 16 septembre 2009 relatif à des substances qui appauvrissent la couche d'ozone.

Composé organique volatil (COV)
Teneur en COV (p/p): 0 %
Teneur en COV: 0 g/l

Classification du produit en accord avec l'Annexe I de la Directive 2012/18/UE (SEVESO III): N/A
Le produit n'est pas affecté par le Règlement (UE) No 528/2012 relatif à la commercialisation et à l'utilisation des biocides.
Le produit ne se trouve pas affecté par le processus établi dans le Règlement (UE) No 649/2012, relatif à l'exportation et à l'importation de produits chimiques dangereux.

Classe de contamination de l'eau (Allemagne): WGK 1: Peu dangereux pour l'eau. (Auto classé selon le Règlement AwSV)

15.2 Évaluation de la sécurité chimique.
Il n'a pas procédé à une évaluation de la sécurité chimique du produit.
Est disponible un Scénario d'Exposition du produit.

RUBRIQUE 16: AUTRES INFORMATIONS.

Codes de classification:

Eye Dam. 1 : Lésions oculaires graves, Catégorie 1

Modifications par rapport à la version précédente:

- Modification des valeurs des propriétés physico-chimiques (SECTION 9).
- Modification des informations relatives aux conditions de stabilité et de réactivité (SECTION 10.2).
- Modification des informations relatives aux conditions de stabilité et de réactivité (SECTION 10.3).
- Modification des informations relatives aux conditions de stabilité et de réactivité (SECTION 10.4).
- Modification des informations relatives aux conditions de stabilité et de réactivité (SECTION 10.5).
- Modification des informations relatives aux conditions de stabilité et de réactivité (SECTION 10.6).
- Changements législatifs nationaux (SECTION 15.1).

Classification et procédure utilisées pour établir la classification des mélanges conformément au règlement (CE) 1272/2008 [CLP]:

Dangers physiques	D'après les données d'essais
Dangers pour la santé	Méthode de calcul
Dangers pour l'environnement	Méthode de calcul

Il est recommandé de suivre une formation basique sur la sécurité et l'hygiène au travail, pour pouvoir manipuler correctement le produit.

Est disponible un Scénario d'Exposition du produit.

Abréviations et acronymes utilisés:
AwSV: Règlement d'Installations pour la manipulation de substances dangereuses pour l'eau.
CEN: Comité européen de normalisation.

-Continue à la page suivante.-

EC50: Concentration efficace moyenne.
PPE: Équipements de protection individuelle.
LC50: Concentration létale, 50%.
LD50: Dose létale, 50%.
WGK: Classes de danger lié à l'eau.

Principales références de la litterature et sources de données:
http://eur-lex.europa.eu/homepage.html
http://echa.europa.eu/
Règlement (UE) 2020/878.
Règlement (CE) No 1907/2006.
Règlement (UE) No 1272/2008.

Les informations contenues dans cette fiche de Sécurité ont été rédigées conformément au RÈGLEMENT (UE) 2020/878 DE LA COMMISSION du 18 juin 2020 modifiant l'Annexe II du règlement (CE) no 1907/2006 du Parlement européen et du Conseil concernant l'enregistrement, l'évaluation et l'autorisation des substances et mélanges chimiques (REACH).

L'information contenue dans cette Fiche de Données de Sécurité du Produit se base sur les connaissances actuelles relatives à ce produit ainsi que sur les lois nationales et européennes en vigueur, sachant que les conditions de travail de ses utilisateurs ne nous sont pas connues et échappent ainsi à notre contrôle.Le produit doit en aucun cas être utilisé à des fins autres que celles pour lesquelles il a été conçu et préparé, il ne peut être utilisé sans connaissance préalable et écrite des instructions relatives à son maniement. Il incombe à l'utilisateur de prendre toutes les mesures nécessaires afin de suivre et respecter les exigences prévues par la loi.

-Fin de la fiche de données de sécurité.-

Table 1: Overview on exposure scenarios and coverage of substance life cycle

ES number	Exposure scenario title	Volume (tonnes)	Identified uses			Resulting life cycle stage		Linked to Identified Use	Sector of use category (SU)	Chemical product category (PC)	Process category (PROC)	Article category (AC)	Environmental release category (ERC)
			Manufacture	Formulation	End use	Consumer use	Service life (for articles)	Waste stage						
9.1	Manufacture and use of sodium hydrogensulfate as such or in preparation in industrial settings	not relevant for exposure assessment	X	X	X				1, 2, 3, 4, 5, 6, 7	2a, 2b, 3, 4, 5, 6b, 7, 8, 9, 10, 11, 13, 15, 16, 17, 19, 20, 23	14, 15, 19, 20, 21, 25, 35, 36, 37	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 12, 13, 14, 15, 17, 19, 21, 24		1 – 7, 12
9.2	Use of sodium hydrogensulfate as such or in preparation in professional settings	not relevant for exposure assessment			X				8, 9	22	14, 15, 20, 35, 37	2, 3, 4, 5, 8a, 8b, 9, 10, 11, 12, 13, 14, 15, 17, 19, 21, 24		8 – 11
9.3	Consumer use of cleaning products containing sodium hydrogensulfate	not relevant for exposure assessment				X			10	21	35			8

ES number	Exposure scenario title	Volume (tonnes)	Manufacture	Identified uses			Resulting life cycle stage		Linked to Identified Use	Sector of use category (SU)	Chemical product category (PC)	Process category (PROC)	Article category (AC)	Environmental release category (ERC)
				Formulation	End use	Consumer use	Service life (for articles)	Waste stage						
9.4	Consumer use of sodium hydrogensulfate as pH-regulator for swimming pools	not relevant for exposure assessment				X			11	21	20, 37			8

9.1 Manufacture and use of sodium hydrogensulfate as such or in preparation in industrial settings

Exposure Scenario Format (1) addressing uses carried out by workers	
1. Title	
Free short title	Manufacture and use of sodium hydrogensulfate as such or in preparation in industrial settings
Systematic title based on use descriptor	SU2a, SU2b, SU3, SU4, SU5, SU6b, SU7, SU8, SU9, SU10, SU11, SU13, SU15, SU16, SU17, SU19, SU20, SU23 PC1PC14, PC15, PC19, PC20, PC21, PC25, PC35, PC36, PC37 PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC12, PROC13, PROC14, PROC15, PROC17, PROC19, PROC21, PROC24 ERC1-7, 12
Processes, tasks and/or activities covered	Processes, tasks and/or activities covered are described in Section 2 below.
Assessment Method	Occupational exposure: A qualitative assessment of inhalation and dermal exposure was conducted in the absence of any DNELs (derived no-effect levels) for inhalation and dermal exposure. Environmental exposure: A qualitative assessment was conducted.
2. Operational conditions and risk management measures	
2.1 Control of workers exposure	
Product characteristic	
Sodium hydrogensulfate is produced and placed on the market as a pearled/granular product or in preparations having the same physical form. The rotating drum method (RDM) according to Heubach was used to determine the particle size distribution of the airborne fraction of dust generated during mechanical agitation simulating workplace conditions. This method provides a "total dustiness" value indicating the propensity of a material to become airborne, and thus serving as an indicator of the emission potential of the material under workplace conditions. The test resulted in a total dustiness of sodium hydrogensulfate of 0.8 % when simulating mechanical agitation (e.g. bagging, filling and mixing operations). According to the MEASE approach, the substance intrinsic emission potential could be assessed as very low – low. Thus, inhalation exposure to sodium hydrogensulfate is assumed to be negligible during all process steps in industrial and/or professional settings and the inhalation route is not a relevant exposure route for this substance. Under the prerequisite that all available (i.e. purchasable) forms of sodium hydrogensulfate are in accordance with the dustiness as documented above, human health is thereby considered to be sufficiently protected. It is noted that the substance intrinsic emission potential may be overwritten for specific processes by the process intrinsic emission potential. PROC 7 and PROC 11 as being spray applications in industrial and non-industrial settings, respectively, are assumed to result in a higher emission potential (it is also assumed that the physical form has to be modified to powder prior to spraying). Since PROC 21 and PROC 24 are considered as potential abrasive tasks, the emission potential is accordingly higher and the physical form is assumed to be wear dust during these tasks.	

PROC	Use in preparation	Content in preparation	Physical form	Emission potential
PROC 7	not restricted		powder	medium
PROC 21, 24			(wear) dust	low – high
All other applicable PROCs			pearls, granules	very low – low

Amounts used
The actual tonnage handled per shift is not considered to influence the exposure as such for this scenario. Instead, the combination of the scale of operation (industrial vs. professional) and level of containment/automation (as reflected in the PROC) is the main determinant of the process intrinsic emission potential.

Frequency and duration of use/exposure	
PROC	**Duration of exposure**
PROC 7	Due to the high level of automation and measures at the process level (please see below), inhalation exposure is negligible and the exposure duration is consequently short (< 60 minutes).
All other applicable PROCs	not restricted

Human factors not influenced by risk management
The shift breathing volume during all process steps reflected in the PROCs is assumed to be 10 m³/shift (8 hours).

Other given operational conditions affecting workers exposure
Other operational conditions such as room volume, indoor or outdoor use, process temperature and process pressure are not considered relevant for the occupational exposure assessment of the conducted processes.

Technical conditions and measures at process level (source) to prevent release		
PROC	**Level of containment**	**Level of segregation**
PROC 1, 2, 3	closed process	not required
PROC 7	closed process	spraying of sodium hydrogensulfate in a segregated spray tower where direct exposure of the worker is excluded
All other applicable PROCs	Risk management measures at the process level (e.g. containment or segregation of the emission source) are generally not required in these processes since any potential inhalation exposure is assumed to be negligible due to the low dusty nature of sodium hydrogensulfate.	

Technical conditions and measures to control dispersion from source towards the worker				
PROC	**Level of separation**	**Localised controls (LC)**	**Efficiency of LC (according to MEASE)**	**Further information**
PROC 7	Any potentially required separation of workers from the emission source is indicated above under "Frequency and duration of exposure". A reduction of exposure duration can be achieved, for example, by the installation of ventilated (positive pressure) control rooms or by removing the worker from workplaces involved with relevant exposure.	Efficient ventilation of the area (e.g. local exhaust ventilation) is recommended to minimise any potential emission of wear dust into workplace air.	78 %	-
All other applicable PROCs	Separation of workers from the emission source is generally not required in the conducted processes.			

Organisational measures to prevent /limit releases, dispersion and exposure
Avoid inhalation or ingestion. General occupational hygiene measures are required to ensure safe handling of the substance. Good occupational hygiene practices have to be followed (e.g. shower and change clothes at end of work shift) to avoid any contamination of private households via the work-home-interface. Do not eat and smoke in the workplace. Unless otherwise stated below, wear standard working clothes and shoes. Do not wear contaminated clothing at home. Do not blow dust off with compressed air. Regular training in workplace hygiene practice and proper use of personal protective equipment is required.

Conditions and measures related to personal protection, hygiene and health evaluation				
PROC	**Specification of respiratory protective equipment (RPE)**	**RPE efficiency (assigned protection factor, APF)**	**Specification of gloves**	**Further personal protective equipment (PPE)**
All applicable PROCs	If ventilation is insufficient and/or formation of relevant dust levels cannot be excluded, use RPE according to EN143 and EN149. An FFP2 mask should be worn for safety reasons when packaging/unpacking sodium hydrogensulfate since high abrasion may occur.	(APF=10, for safety reasons during processes where relevant dust levels and high abrasion may occur)	In cases where extensive direct contact with sodium hydrogensulfate cannot be avoided, wear suitable protective gloves according to EN374.	Eye protection equipment (e.g. goggles or visors) conforming to EN166 must be worn, unless potential contact with the eye can be excluded by the nature and type of application (i.e. closed process). Additionally, face protection, protective clothing and safety shoes are required to be worn as appropriate.
Any RPE as defined above shall only be worn if the following principles are implemented in parallel: The duration of work (compare with "duration of exposure" above) should reflect the additional physiological stress for the worker due to the breathing resistance and mass of the RPE itself, due to the increased thermal stress by enclosing the head. In addition, it shall be considered that the worker's capability of using tools and of communicating are reduced during the wearing of RPE. For reasons as given above, the worker should therefore be (i) healthy (especially in view of medical problems that may affect the use of RPE), (ii) have suitable facial characteristics reducing leakages between face and mask (in view of scares and facial hair). The recommended devices above which rely on a tight face seal will not provide the required protection unless they fit the contours of the face properly and securely. The employer and self-employed persons have legal responsibilities for the maintenance and issue of respiratory protective devices and the management of their correct use in the workplace. Therefore, they should define and document a suitable policy for a respiratory protective device programme including training of the workers. An overview of the APFs of different RPE (according to BS EN 529:2005) can be found in the glossary of MEASE.				

2.2 Control of environmental exposure

Amounts used

The daily and annual amount per site (for point sources) is not considered to be the main determinant for environmental exposure.

Frequency and duration of use

Intermittent (< 12 time per year) or continuous use/release

Environment factors not influenced by risk management

Flow rate of receiving surface water: 18000 m3/day

Other given operational conditions affecting environmental exposure

Effluent discharge rate: 2000 m3/day

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Risk management measures related to the environment aim to avoid discharging $NaHSO_4$ solutions into municipal wastewater or to surface water, in case such discharges are expected to cause significant pH changes regular control of the pH value during introduction into open waters is required. In general discharges should be carried out such that pH changes in receiving surface waters are minimised (e.g. through neutralisation). In general most aquatic organisms can tolerate pH values in the range of 6-9. This is also reflected in the description of standard OECD tests with aquatic organisms. Neutralisation of waste waters and effluent should be widespread (often it is also required by national legislation).

Conditions and measures related to waste

Solid industrial waste of $NaHSO_4$ should be reused or discharged to the industrial wastewater and further neutralized if needed.

3. Exposure estimation and reference to its source

Occupational exposure

PROC	Method used for inhalation exposure assessment (refer to introduction)	Inhalation exposure estimate (RCR)	Method used for dermal exposure assessment	Dermal exposure estimate (RCR)
All applicable PROCs	Since sodium hydrogensulfate has a low dustiness (<1 % as obtained in rotating drum testing), inhalation exposure during all process steps is assumed to be negligible if the proposed risk management measures as described above are met.		Due to the negligible dermal absorption of sodium hydrogensulfate, the dermal route is not a relevant exposure path for sodium hydrogensulfate and a dermal DNEL has not been derived. Thus, dermal exposure is not assessed in this exposure scenario.	

Environmental emissions	
The environmental exposure assessment is only relevant for the aquatic environment, when applicable including STPs/WWTPs, as emissions of $NaHSO_4$ in the different life-cycle stages (production and use) mainly apply to (waste) water. The aquatic effect and risk assessment only deal with the effect on organisms/ecosystems due to possible pH changes related to H^+ discharges, being the toxicity of Na^+ and SO_4^{2-} are expected to be negligible compared to the (potential) pH effect. Only the local scale is addressed, including municipal sewage treatment plants (STPs) or industrial waste water treatment plants (WWTPs) when applicable, both for production and industrial use as any effects that might occur would be expected to take place on a local scale. The high water solubility and very low vapour pressure indicate that $NaHSO_4$ will be found predominantly in water. Significant emissions or exposure to air are not expected due to the low vapour pressure of $NaHSO_4$. Significant emissions or exposure to the terrestrial environment are not expected either for this exposure scenario.	
Environmental emissions	The production or use of $NaHSO_4$ can potentially result in an aquatic emission and locally increase the $NaHSO_4$ concentration and affect the pH in the aquatic environment. When the pH is not neutralised, the discharge of effluent from $NaHSO_4$ production or use sites may impact the pH in the receiving water. The pH of effluents is normally measured very frequently and can be neutralised easily as often required by national laws.
Exposure concentration in waste water treatment plant (WWTP)	Waste water from $NaHSO_4$ production or use is an inorganic wastewater stream and therefore there is no biological treatment. Therefore, wastewater streams from $NaHSO_4$ production sites will normally not be treated in biological waste water treatment plants (WWTPs).
Exposure concentration in aquatic pelagic compartment	When $NaHSO_4$ is emitted to surface water, sorption to particulate matter and sediment will be negligible. When $NaHSO_4$ is rejected to surface water, the pH may decrease, depending on the buffer capacity of the water. The higher the buffer capacity of the water, the lower the effect on pH will be. In general the buffer capacity preventing shifts in acidity or alkalinity in natural waters is regulated by the equilibrium between carbon dioxide (CO_2), the bicarbonate ion (HCO_3^-) and the carbonate ion (CO_3^{2-}).
Exposure concentration in sediments	The sediment compartment is not included in this ES, because it is not considered relevant for $NaHSO_4$: when $NaHSO_4$ is emitted to the aquatic compartment, sorption of to sediment particles is negligible.
Exposure concentrations in soil and groundwater	The terrestrial compartment is not included in this exposure scenario, because it is not considered to be relevant.
Exposure concentration in atmospheric compartment	The air compartment is not included in this CSA because it is considered not relevant for $NaHSO_4$.
Exposure concentration relevant for the food chain (secondary poisoning)	Bioaccumulation in organisms is not relevant for $NaHSO_4$: a risk assessment for secondary poisoning is therefore not required.

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

Occupational exposure
The DU works inside the boundaries set by the ES if he handles sodium hydrogensulfate having the same properties with regard to dustiness as described in this ES and if the proposed risk management measures as described above are met. A dustiness assessment can be made either on a qualitative or on a quantitative basis. For a qualitative assessment the MEASE glossary (www.ebrc.de/mease.html) can be consulted, which provides guidance on this topic. A quantitative assessment can be done by conducting a dustiness test with the specific material according to the rotating drum method. It is however noted that also other dustiness tests exist, which may be used instead. For further details please refer to the European Standard EN 15051 titled "Workplace atmospheres – Measurement of the dustiness of bulk materials – Requirements and reference test methods".

Environmental emissions

If a site does not comply with the conditions stipulated in the safe use ES, it is recommended to apply a tiered approach to perform a more site-specific assessment. For that assessment, the following tiered approach is recommended.

Tier 1: retrieve information on effluent pH and the contribution of $NaHSO_4$ on the resulting pH. Shall the pH be bellow 6 and predominantly dependent by the $NaHSO_4$, than further actions are required to demonstrate safe use.

Tier 2a: retrieve information on receiving water pH after the discharge point. The pH of the receiving water shall not be lower then 6. If the measures are not available, the pH in the river can be calculated as follows:

$$pHriver = Log\left[\frac{Qeffluent * 10^{pHeffluent} + Qriverupstream * 10^{pHupstream}}{Qriverupstream + Qeffluent}\right]$$

(Eq 1)

Where:

Q effluent refers to the effluent flow (in m3/day)

Q river upstream refers to the upstream river flow (in m3/day)

pH effluent refers to the pH of the effluent

pH upstream river refers to the pH of the river upstream of the discharge point

Please note that initially, default values can be used:

- Q river upstream flows: use the 10th of existing measurements distribution or use default value of 18000 m3/day
- Q effluent: use default value of 2000 m3/day
- The upstream pH is preferably a measured value. If not available, one can assume a neutral pH of 7 if this can be justified.

Such equation has to be seen as a worst case scenario, where water conditions are standard and not case specific.

Tier 2b: Equation 1 can be used to identify which effluent pH causes an acceptable pH level in the receiving body. In order to do so, pH of the river is set at value 6 and pH of the effluent is calculated accordingly (using default values as reported previously, if necessary). As temperature influences solubility, pH effluent might require to be adjusted on a case-by-case basis. Once the maximum admissible pH value in the effluent is established, it is assumed that the H^+ concentrations are all dependent on $NaHSO_4$ discharge and that there is no buffer capacity conditions to consider (this is a unrealistic worst case scenario, which can be modified where information is available). Maximum load of $NaHSO_4$ that can be annually rejected without negatively affecting the pH of the receiving water is calculated assuming chemical equilibrium. H^+ expressed as moles/litre is multiplied by average flow of the effluent and then divided by the molar mass of $NaHSO_4$.

Tier 3: measure the pH in the receiving water after the discharge point. If pH is between 6 and 9, safe use is reasonably demonstrated and the ES ends here. If pH is found to be below 6, risk management measures have to be implemented: the effluent has to undergo neutralisation, thus ensuring safe use of $NaHSO_4$ during production or use phase.

9.2 Use of sodium hydrogensulfate as such or in preparation in professional settings

Exposure Scenario Format (1) addressing uses carried out by workers	
1. Title	
Free short title	Use of sodium hydrogensulfate as such or in preparation in professional settings
Systematic title based on use descriptor	SU22 PC14, PC15, PC20, PC35, PC37 PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC12, PROC13, PROC14, PROC15, PROC17, PROC19, PROC21, PROC24 ERC8-11
Processes, tasks and/or activities covered	Processes, tasks and/or activities covered are described in Section 2 below.
Assessment Method	Occupational exposure: A qualitative assessment of inhalation and dermal exposure was conducted in the absence of any DNELs (derived no-effect levels) for inhalation and dermal exposure. Environmental exposure: A qualitative assessment was conducted.
2. Operational conditions and risk management measures	
2.1 Control of workers exposure	
Product characteristic	
Sodium hydrogensulfate is produced and placed on the market as a pearled/granular product or in preparations having the same physical form. The rotating drum method (RDM) according to Heubach was used to determine the particle size distribution of the airborne fraction of dust generated during mechanical agitation simulating workplace conditions. This method provides a "total dustiness" value indicating the propensity of a material to become airborne, and thus serving as an indicator of the emission potential of the material under workplace conditions. The test resulted in a total dustiness of sodium hydrogensulfate of 0.8 % when simulating mechanical agitation (e.g. bagging, filling and mixing operations). According to the MEASE approach, the substance intrinsic emission potential could be assessed as very low – low. Thus, inhalation exposure to sodium hydrogensulfate is assumed to be negligible during all process steps in industrial and/or professional settings and the inhalation route is not a relevant exposure route for this substance. Under the prerequisite that all available (i.e. purchasable) forms of sodium hydrogensulfate are in accordance with the dustiness as documented above, human health is thereby considered to be sufficiently protected. It is noted that the substance intrinsic emission potential may be overwritten for specific processes by the process intrinsic emission potential. PROC 7 and PROC 11 as being spray applications in industrial and non-industrial settings, respectively, are assumed to result in a higher emission potential (it is also assumed that the physical form has to be modified to powder prior to spraying). Since PROC 21 and PROC 24 are considered as potential abrasive tasks, the emission potential is accordingly higher and the physical form is assumed to be wear dust during these tasks.	

PROC	Use in preparation	Content in preparation	Physical form	Emission potential
PROC 11	not restricted		powder	medium
PROC 21, 24			(wear) dust	low – high
All other applicable PROCs			pearls, granules	very low – low

Amounts used	
The actual tonnage handled per shift is not considered to influence the exposure as such for this scenario. Instead, the combination of the scale of operation (industrial vs. professional) and level of containment/automation (as reflected in the PROC) is the main determinant of the process intrinsic emission potential.	
Frequency and duration of use/exposure	
PROC	**Duration of exposure**
PROC 11	Due to the high level of automation and measures at the process level (please see below), inhalation exposure is negligible and the exposure duration is consequently short (< 60 minutes).
All other applicable PROCs	not restricted
Human factors not influenced by risk management	
The shift breathing volume during all process steps reflected in the PROCs is assumed to be 10 m³/shift (8 hours).	
Other given operational conditions affecting workers exposure	
Other operational conditions such as room volume, indoor or outdoor use, process temperature and process pressure are not considered relevant for the occupational exposure assessment of the conducted processes.	

Technical conditions and measures at process level (source) to prevent release		
PROC	**Level of containment**	**Level of segregation**
PROC 2, 3	closed process	not required
PROC 11	closed process	spraying in non-industrial settings has to be performed in segregated areas where direct exposure of the worker is excluded
All other applicable PROCs	Risk management measures at the process level (e.g. containment or segregation of the emission source) are generally not required in these processes since any potential inhalation exposure is assumed to be negligible due to the low dusty nature of sodium hydrogensulfate.	

Technical conditions and measures to control dispersion from source towards the worker				
PROC	**Level of separation**	**Localised controls (LC)**	**Efficiency of LC (according to MEASE)**	**Further information**
PROC 11	Any potentially required separation of workers from the emission source is indicated above under "Frequency and duration of exposure". A reduction of exposure duration can be achieved, for example, by the installation of ventilated (positive pressure) control rooms or by removing the worker from workplaces involved with relevant exposure.	Efficient ventilation of the area (e.g. local exhaust ventilation) is recommended to minimise any potential emission of wear dust into workplace air.	78 %	-
All other applicable PROCs	Separation of workers from the emission source is generally not required in the conducted processes.			

Organisational measures to prevent /limit releases, dispersion and exposure
Avoid inhalation or ingestion. General occupational hygiene measures are required to ensure safe handling of the substance. Good occupational hygiene practices have to be followed (e.g. shower and change clothes at end of work shift) to avoid any contamination of private households via the work-home-interface. Do not eat and smoke in the workplace. Unless otherwise stated below, wear standard working clothes and shoes. Do not wear contaminated clothing at home. Do not blow dust off with compressed air. Regular training in workplace hygiene practice and proper use of personal protective equipment is required.

Conditions and measures related to personal protection, hygiene and health evaluation				
PROC	**Specification of respiratory protective equipment (RPE)**	**RPE efficiency (assigned protection factor, APF)**	**Specification of gloves**	**Further personal protective equipment (PPE)**
All applicable PROCs	If ventilation is insufficient and/or formation of relevant dust levels cannot be excluded, use RPE according to EN143 and EN149. An FFP2 mask should be worn for safety reasons when packaging/unpacking sodium hydrogensulfate since high abrasion may occur.	(APF=10, for safety reasons during processes where relevant dust levels and high abrasion may occur)	In cases where extensive direct contact with sodium hydrogensulfate cannot be avoided, wear suitable protective gloves according to EN374.	Eye protection equipment (e.g. goggles or visors) conforming to EN166 must be worn, unless potential contact with the eye can be excluded by the nature and type of application (i.e. closed process). Additionally, face protection, protective clothing and safety shoes are required to be worn as appropriate.
Any RPE as defined above shall only be worn if the following principles are implemented in parallel: The duration of work (compare with "duration of exposure" above) should reflect the additional physiological stress for the worker due to the breathing resistance and mass of the RPE itself, due to the increased thermal stress by enclosing the head. In addition, it shall be considered that the worker's capability of using tools and of communicating are reduced during the wearing of RPE. For reasons as given above, the worker should therefore be (i) healthy (especially in view of medical problems that may affect the use of RPE), (ii) have suitable facial characteristics reducing leakages between face and mask (in view of scares and facial hair). The recommended devices above which rely on a tight face seal will not provide the required protection unless they fit the contours of the face properly and securely. The employer and self-employed persons have legal responsibilities for the maintenance and issue of respiratory protective devices and the management of their correct use in the workplace. Therefore, they should define and document a suitable policy for a respiratory protective device programme including training of the workers. An overview of the APFs of different RPE (according to BS EN 529:2005) can be found in the glossary of MEASE.				

2.2 Control of environmental exposure

Amounts used

The daily and annual amount per site (for point sources) is not considered to be the main determinant for environmental exposure. In this scenario the emissions of $NaHSO_4$ are considered in lower amounts and on a larger scale due to professional and/or consumer use.

Frequency and duration of use

Due to the wide dispersive aspect of the scenario a continuous release is assumed.

Environment factors not influenced by risk management

Flow rate of receiving surface water: 18000 m3/day

Other given operational conditions affecting environmental exposure

Effluent discharge rate of the STP: 2000 m3/day

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

No risk management measure can be assumed for professional and/or consumer uses. All waste water resulting from use (cleaning, pH-regulator in swimming pools) of $NaHSO_4$ is assumed to be directed to a municipal STP (default setting according to ECHA guidance R16).

Conditions and measures related to waste

Not relevant

3. Exposure estimation and reference to its source

Occupational exposure

PROC	Method used for inhalation exposure assessment (refer to introduction)	Inhalation exposure estimate (RCR)	Method used for dermal exposure assessment	Dermal exposure estimate (RCR)
All applicable PROCs	Since sodium hydrogensulfate has a low dustiness (<1 % as obtained in rotating drum testing), inhalation exposure during all process steps is assumed to be negligible if the proposed risk management measures as described above are met.		Due to the negligible dermal absorption of sodium hydrogensulfate, the dermal route is not a relevant exposure path for sodium hydrogensulfate and a dermal DNEL has not been derived. Thus, dermal exposure is not assessed in this exposure scenario.	

Environmental emissions

Environmental emissions	Wide dispersive uses of $NaHSO_4$ usually use diluted products. The small amounts of $NaHSO_4$ will entirely end up in the sewer where they will further be neutralized quickly by the buffer capacity of the wastewater before reaching a STP or surface water. The influent of a municipal STP is typically tested for pH and, if needed, adjusted before entering the biological step. The effluent of a municipal STP is usually circum-neutrual.
Exposure concentration in waste water treatment plant	Since the municipal STP usually monitors the pH of the influent and neutralize accordingly if needed, there is no pH impact expected on the microbiological activity in the municipal STP.
Exposure concentration in aquatic pelagic compartment	When $NaHSO_4$ is emitted to surface water, sorption to particulate matter and sediment will be negligible. When $NaHSO_4$ is rejected to surface water, the pH may decrease, depending on the buffer capacity of the water. The higher the buffer capacity of the water, the lower the effect on pH will be. In general the buffer capacity preventing shifts in acidity or alkalinity in natural waters is regulated by the equilibrium between carbon dioxide (CO_2), the bicarbonate ion (HCO_3^-) and the carbonate ion (CO_3^{2-}).
Exposure concentration in sediments	The sediment compartment is not included in this ES, because it is not considered relevant for $NaHSO_4$: when $NaHSO_4$ is emitted to the aquatic compartment, sorption of to sediment particles is negligible.
Exposure concentrations in soil and groundwater	The terrestrial compartment is not included in this exposure scenario, because it is not considered to be relevant.
Exposure concentration in atmospheric compartment	The air compartment is not included in this CSA because it is considered not relevant for $NaHSO_4$.
Exposure concentration relevant for the food chain (secondary poisoning)	Bioaccumulation in organisms is not relevant for $NaHSO_4$: a risk assessment for secondary poisoning is therefore not required.

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES
Occupational exposure
The DU works inside the boundaries set by the ES if he handles sodium hydrogensulfate having the same properties with regard to dustiness as described in this ES and if the proposed risk management measures as described above are met. A dustiness assessment can be made either on a qualitative or on a quantitative basis. For a qualitative assessment the MEASE glossary (www.ebrc.de/mease.html) can be consulted, which provides guidance on this topic. A quantitative assessment can be done by conducting a dustiness test with the specific material according to the rotating drum method. It is however noted that also other dustiness tests exist, which may be used instead. For further details please refer to the European Standard EN 15051 titled "Workplace atmospheres – Measurement of the dustiness of bulk materials – Requirements and reference test methods".
Environmental emissions
not relevant for consumers/professionals

9.3 Consumer use of cleaning products containing sodium hydrogensulfate

Appendix 2*: Exposure Scenario Format (2) addressing uses carried out by consumers*	
1. Title	
Free short title	Consumer use of cleaning products containing sodium hydrogensulfate
Systematic title based on use descriptor	SU21, PC35, ERC 8a
Processes, tasks activities covered	Tasks and activities covered are described in section 2 below.
Assessment Method*	Human health No exposure estimation was performed for the dermal route. A quantitative assessment was performed for inhalation and the oral route using the HERA guidance document as a guide. Environment: A qualitative justification is provided.
2. Operational conditions and risk management measures	
RMM	The solid products will be in form of pearls or granules as manufactured, having a low-very low dust formation potential.
PC/ERC	**Description**
PC 35	Cleaners (all purpose cleaners, sanitary products): • Surface cleaning. • Pouring of liquid concentrate or solid granules. Toilet cleaner: • Pouring of solid granules
ERC 8a	Wide dispersive indoor use of processing aids in open systems

2.1 Control of consumers exposure

Product characteristic

Description of the preparation	**Concentration of the substance in the preparation**	**Physical state of the preparation**	**Dustiness (if relevant)**	**Packaging design**
Acid surface cleaner (l)	6%	liquid	NR	0.75 – 1L
Acid surface cleaner (s)	10%	Solid, pearls	Very low	0.75 – 1L
Toilet cleaner (s)	80%	Solid, pearls	Very low	0.75 – 1L

Amounts used

Description of the preparation	**Amount used per event**	**Source of information**
Acid surface cleaner (l)	Typical: 60g per 5L = 12g/L Max: 110g per 5L = 22g/L	(HERA, 2005, Appendix F)
Acid surface cleaner (s)	Max: 40g per 5L = 8g/L	(HERA, 2005, Appendix F)
Toilet cleaner (s)	Typical: 20g Max: 30g	(HERA, 2005, Appendix F)

Frequency and duration of use/exposure

Description of the preparation	**Duration of exposure per event**	**frequency of events**	**Source of information**
Acid surface cleaner (l)	20 min (max)	Up to 7 tasks per week (max)	(HERA, 2005, Appendix F)
Acid surface cleaner (s)	20 min (max)	Up to 7 tasks per week (max)	(HERA, 2005, Appendix F)
Toilet cleaner (s)	< 1min	Up to 2 tasks per week (max)	(HERA, 2005, Appendix F)

Appendix 2*: Exposure Scenario Format (2) addressing uses carried out by consumers*				
Human factors not influenced by risk management				
Description of the preparation	**Population exposed**	**Body weight (BW) [kg]**	**Exposed body part**	**Corresponding skin area [cm²]**
Acid surface cleaner (l)	adult	60 (HERA, 2005, Appendix G)	Hands	857.5
Acid surface cleaner (s)	Adult		Hands	857.5
Toilet cleaner (s)	adult		Only splashes	-
Other given operational conditions affecting consumers exposure				
Film thickness on skin	0.01cm (HERA, 2005, Appendix G)			
Conditions and measures related to information and behavioural advice to consumers				
Do not get in eyes. Keep container closed and out of reach of children. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wash thoroughly after handling.				
Conditions and measures related to personal protection and hygiene				
Wear suitable goggles.				

2.2 Control of environmental exposure

Product characteristics
Not relevant for exposure assessment
Amounts used*
Not relevant for exposure assessment
Frequency and duration of use
Not relevant for exposure assessment
Environment factors not influenced by risk management
Default river flow and dilution
Other given operational conditions affecting environmental exposure
Indoor and outdoor
Conditions and measures related to municipal sewage treatment plant
Default size of municipal sewage system/treatment plant and sludge treatment technique
Conditions and measures related to external treatment of waste for disposal
Not relevant for exposure assessment
Conditions and measures related to external recovery of waste
Not relevant for exposure assessment

3. Exposure estimation and reference to its source

Since sodium hydrogensulfate is classified as irritating to eyes (eye dam.1) a qualitative assessment has been performed for exposure to the eye.

Human exposure	
Acid surface cleaner (l), Acid surface cleaner (s), Toilet cleaner (s)	
Route of exposure	**Method used, comments**
Oral	Qualitative assessment Oral uptake of sodium hydrogensulfate via the use of household cleaning products is considered negligible under normal handling conditions.
Dermal	No local effects are known after dermal exposure. Furthermore, dermal absorption is considered negligible and

Appendix 2*: Exposure Scenario Format (2) addressing uses carried out by consumers*	
	there are no data available which indicate systemic toxicity following this route. Thus, dermal exposure is not assessed in this exposure scenario.
Eye	Qualitative assessment Exposure to the eyes is not expected as part of the intended product use. Solid: As the product is of low-very low dustiness no dust formation is expected. Liquid: Splashes into the eyes cannot be excluded if no protective goggles are worn during the application. However,this will mainly be to the diluted application solution (<1% $NaHSO_4$). Therefore mild irritation can easily be avoided by immediate rinsing of the eyes with water.
Inhalation	Sodium hydrogensulfate has a low dustiness (<1 % as obtained in rotating drum testing), therefore inhalation exposure during use of solid sodium hydrogensulfate pearls is assumed to be negligible. Thus, inhalation exposure is not assessed in this exposure scenario.
Environmental exposure	
The pH impact due to use of sodium hydrogensulfate in household cleaning products is expected to be negligible. The influent of a municipal wastewater treatment plant is often neutralized anyway and sodium hydrogensulfate may even be used beneficially for pH control of basic wastewater streams that are treated in biological WWTPs. Since the pH of the influent of the municipal treatment plant is circum neutral, the pH impact is negligible on the receiving environmental compartments, such as surface water, sediment and terrestrial compartment.	
4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES	
The DU works inside the boundaries set by the ES if sodium hydrogensulfate is either marked as a liquid preparation or in case of a solid preparation sodium hydrogensulfate is used as manufactured and not further processed to get smaller particles.	

9.4 Consumer use of sodium hydrogensulfate as pH-regulator for swimming pools

Appendix 2*: Exposure Scenario Format (2) addressing uses carried out by consumers*	
1. Title	
Free short title	Consumer use of sodium hydrogensulfate as pH-regulator for swimming pools
Systematic title based on use descriptor	SU21, PC20, 37, ERC 8
Processes, tasks activities covered	Tasks and activities covered are described in section 2 below.
Assessment Method*	Human health Human exposure has been assessed on a qualitative basis. Nevertheless the US EPA Standard operating procedures (SOPs) for residential exposure assessment – swimming pools (US EPA, 1997) has been used as a guide. Environment: A qualitative justification is provided.

2. Operational conditions and risk management measures	
PC/ERC	**Description**
PC 20, 37	**Applying of pH-regulator to swimming pools:** Manual filling/pouring of sodium hydrogensulfate into swimming pool (large amount). Preparation of sodium hydrogensulfate solution for further application/pouring of sodium hydrogensulfate into water (small amount). Dropwise application of sodium hydrogensulfate solution to water.
ERC 8	Wide dispersive use

2.1 Control of consumers exposure

Product characteristic

Description of the preparation	**Concentration of the substance in the preparation**	**Physical state of the preparation**	**Dustiness (if relevant)**	**Packaging design**
pH-regulator for swimming pools (solid)	100%	granular	Very low (beads)	1 – 5 kg
pH-regulator for swimming pools (liquid)	≤ 50%	liquid	NR	1 – 5 L

Amounts used

Description of the preparation	**Amount used per event**	**Source of information**
pH-regulator for swimming pools (solid)	depending on the pH of water and size of swimming pool : 10g to reduce the pH by 0.1 per 1m³ swimmingpool water.	Instructions by producer.
pH-regulator for swimming pools (liquid)	10% solution (1kg/10L water)	Instructions by producer.
Post-application ingestion	0.05L/h	US EPA, SOPs for residential exposure assessments – swimming pools

Frequency and duration of use/exposure

Description of task	**Duration of exposure per event**	**frequency of events**
Pouring of granules	1.33 min (DIY-fact sheet, RIVM, Chapter 2.4.2 Mixing and loading of powders)	1task/week
Dropwise application of	Several minutes - hours	1 task/ month

Appendix 2: *Exposure Scenario Format (2) addressing uses carried out by consumers*				
solution				
Post-application ingestion	5h (child of 6 years) 6h (adults) 90th percentile value for time spent at home in the pool (US EPA, 1996: Exposure factors handbook, EPA/600/P-95/002Ba)		daily	
Human factors not influenced by risk management				
Description of task	**Population exposed**	**Body weight (BW) [kg]**	**Exposed body part**	**Corresponding skin area [cm²]**
Pouring of granules	adult	60	Half of both hands	430
Dropwise application of solution	Adult		Hands	860
Post-application ingestion	Child (6 years) Adult	22 60	-	-
Other given operational conditions affecting consumers exposure				
Film thickness on skin	0.01cm (HERA, 2005, Appendix G)			
Conditions and measures related to information and behavioural advice to consumers				
Do not get in eyes. Keep container closed and out of reach of children. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wash thoroughly after handling. Assure an equal distribution of the salt by running the circulating pump for 4-6h and measure the pH to be in the desired range between 7.0-7.4 before swimming pool use.				
Conditions and measures related to personal protection and hygiene				
Wear suitable goggles.				
2.2 Control of environmental exposure				
Product characteristics				
Not relevant for exposure assessment				
Amounts used*				
Not relevant for exposure assessment				
Frequency and duration of use				
Not relevant for exposure assessment				
Environment factors not influenced by risk management				
Default river flow and dilution				
Other given operational conditions affecting environmental exposure				
Indoor and outdoor				
Conditions and measures related to municipal sewage treatment plant				
Default size of municipal sewage system/treatment plant and sludge treatment technique				
Conditions and measures related to external treatment of waste for disposal				
Not relevant for exposure assessment				
Conditions and measures related to external recovery of waste				
Not relevant for exposure assessment				
3. Exposure estimation and reference to its source				
Since sodium hydrogensulfate is classified as irritating to eyes (eye dam.1) a qualitative assessment has been performed for exposure				

Appendix 2*: Exposure Scenario Format (2) addressing uses carried out by consumers*	
to the eye.	
Human exposure	
Use of pH-regulator for swimming pools	
Route of exposure	**Method used, comments**
Oral	Qualitative assessment Oral uptake of sodium hydrogensulfate as pH-regulator of swimming pools is not considered under normal handling conditions.
Dermal	No local effects are known after dermal exposure. Furthermore, dermal absorption is considered negligible and there are no data available which indicate systemic toxicity following this route. Thus, dermal exposure is not assessed in this exposure scenario.
Inhalation	Sodium hydrogensulfate has a low dustiness (<1 % as obtained in rotating drum testing), therefore inhalation exposure during use of solid sodium hydrogensulfate pearls is assumed to be negligible. Thus, inhalation exposure is not assessed in this exposure scenario.
Eye	Qualitative assessment Exposure to the eyes is not expected as part of the intended product use. Solid: As the product is of low-very low dustiness no dust formation is expected. Liquid: However, splashes into the eyes cannot be excluded if no protective goggles are worn during the task described . Prompt rinsing with water and seeking medical advice after accidental exposure is advisable.
Post-application ingestion:	
Route of exposure	**Method used, comments**
Oral	Qualitative assessment: Sodium hydrogensulfate will dissolve in water to sodium and sulphate ions and will reduces the pH of the swimming pool water. If an equal distribution of the salt has been secured and the pH was measured to be in the desired range between 7.0-7.4 no local effects need to be suspected. No systemic effects are expected from the oral uptake, as these ions are omnipresent in nature and normal constituent of the human body.
Environmental exposure	
The pH impact due to use of sodium hydrogensulfate as pH-regulator in residential swimming pools is expected to be negligible, as under normal use conditions the desired effect is to neutralize the pH of the swimming pool water. However, the influent of a municipal wastewater treatment plant is often neutralized anyway and sodium hydrogensulfate may even be used beneficially for pH control of basic wastewater streams that are treated in biological WWTPs. Since the pH of the influent of the municipal treatment plant is circum neutral, the pH impact is negligible on the receiving environmental compartments, such as surface water, sediment and terrestrial compartment.	
4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES	
The DU works inside the boundaries set by the ES if sodium hydrogensulfate is either marked as a liquid preparation or in case of a solid preparation sodium hydrogensulfate is used as manufactured and not further processed to get smaller particles.	

10 Risk Characterisation

10.1 Industrial uses of $NaHSO_4$

10.1.1 Occupational exposure

Please refer to Section 3 of exposure scenario 9.1. Inhalation and dermal exposure have been addressed qualitatively in the absence of any DNELs (derived no-effect levels).

10.1.2 Environmental exposure

As shown in the exposure scenario 9.1, no exposure to $NaHSO_4$ is expected to occur in sediments, soil and groundwater or atmospheric compartment.

10.1.2.1 Aquatic compartment (including microbiological activity in STP)

The risk characterisation is only performed for the aquatic environment compartment, when applicable including STPs/WWTPs, as emissions of $NaHSO_4$ in the different life-cycle stages (production and use) mainly apply to (waste) water.
Discharges of $NaHSO_4$ from production and use to STPs/WWTPs and receiving waters are generally well controlled. Additionally, national regulations often require pH control of the wastewaters, to protect surface waters from pH changes. Where a significant pH change cannot be excluded, neutralisation of $NaHSO_4$ containing wastewaters and effluents applies.
Therefore, the aquatic compartment is adequately protected with respect to pH changes.

10.2 Wide dispersive uses of $NaHSO_4$

10.2.1 Occupational exposure

Please refer to Section 3 of exposure scenario 9.2. Inhalation and dermal exposure have been addressed qualitatively in the absence of any DNELs (derived no-effect levels).

10.2.2 Environmental exposure

10.2.2.1 Aquatic compartment (including microbiological activity in STP)

The risk characterisation is only performed for the aquatic environment compartment and the municipal STPs, as emissions of $NaHSO_4$ in the different life-cycle stages mainly apply to (waste) water.
Discharges of $NaHSO_4$ from wide dispersive use to the STPs are generally quickly neutralized in the sewer. Additionally, the municipal STP will analyse the pH of the influent and effluent to protect the biological step in the STP and the receiving water from pH changes. Where a significant pH change cannot be excluded, neutralisation of $NaHSO_4$ containing wastewaters applies.
Therefore, the aquatic compartment is adequately protected with respect to pH changes.

10.3 Consumer uses of $NaHSO_4$

10.3.1 Consumer exposure

No quantitative assessment has been performed; therefore no risk characterisation ratio (RCR) has been derived.

Regarding the irritant effect to the eyes sodium hydrogensulfate can be allocated to the severe hazard category on the basis that exposure to such irritant substances should be avoided. Exposure to the eyes is not expected as part of the intended product use. However, accidental splashes cannot be excluded. However, it can be assumed that this would be to the diluted form rather than the concentrate. Therefore, mild irritation can easily be avoided by immediate rinsing of the eyes with water.

10.3.2 Environmental exposure

Consumer uses relate to already diluted products which will further be neutralized quickly in the sewer, well before reaching a WWTP or surface water. The influent of municipal treatment plants is usually neutralized anyway. Therefore, consumer use of sodium hydrogensulfate is adequately under control for the environment.