SCHEDA DI DATI DI SICUREZZA

(secondo il REGOLAMENTO (UE) 2020/878)

0010-pH-

SEZIONE 1: IDENTIFICAZIONE DELLA SOSTANZA/MISCELA E DELLA SOCIETÀ/IMPRESA.

1.1 Identificatore del prodotto.

Nome prodotto:	pH-
Codice di prodotto:	0010
Nome chimico:	idrogenosolfato di sodio
Numero della sostanza:	016-046-00-X
N. CAS:	7681-38-1
N. EC:	231-665-7
N. Registrazione:	01-2119552465-36-XXXX

1.2 Usi identificati pertinenti della sostanza o della miscela e usi sconsigliati.

Regolatore di pH

Usi sconsigliati:
Usi differenti a quelli consigliati.
Gli scenari di esposizione relativi agli usi si possono trovare nell'Allegato.

1.3 Informazioni sul fornitore della scheda di dati di sicurezza.

Impresa:	**FLUIDRA COMMERCIAL FRANCE**
indirizzo:	Avenue Maurice Bellonte,
Città:	66 000 PERPIGNAN
Provincia:	FRANCE
Teléfono:	Tel: 04 11 300 200
Fax:	+34 93 713 41 11
E-mail:	fds@inquide.com
Web:	www.ctxprofessional.com

1.4 Numero telefonico di emergenza: (Disponibile 24 ore)
CAV accreditati: Roma +39 06 68 59 3726; Foggia +39 800 18 34 59; Napoli +39 081 54 53 333; Roma +39 06 49 97 80 00; Roma +39 06 30 54 343; Firenze +39 055 79 47 819; Pavia +39 0382 24 444; Milano +39 02 66 10 10 29; Bergamo +39 800 88 33 00; Verona +39 800 01 18 58.

SEZIONE 2: IDENTIFICAZIONE DEI PERICOLI.

2.1 Classificazione della sostanza o della miscela.

Secondo il Regolamento (EU) No 1272/2008:
Eye Dam. 1 : Provoca gravi lesioni oculari.

2.2 Elementi dell'etichetta.

Etichettatura secondo regolamento (CE) n. 1272/2008:
Pittogrammi:

-*Continua alla prossima pagina.*-

Parola di avvertimento:
Pericolo
Indicazioni di pericolo:
H318 Provoca gravi lesioni oculari.

Consigli di prudenza:
P101 In caso di consultazione di un medico, tenere a disposizione il contenitore o l'etichetta del prodotto.
P102 Tenere fuori dalla portata dei bambini.
P103 Leggere attentamente e seguire tutte le istruzioni.
P280 Indossare guanti e maschera protettivi.
P305+P351+P338 IN CASO DI CONTATTO CON GLI OCCHI: sciacquare accuratamente per parecchi minuti. Togliere le eventuali lenti a contatto se è agevole farlo. Continuare a sciacquare.
P301+P310 IN CASO DI INGESTIONE: contattare immediatamente un CENTRO ANTIVELENI o un medico.
P501 Smaltire il contenuto e/o il contenitore in conformità con le normative sui rifiuti pericolosi.

Contiene:
idrogenosolfato di sodio

2.3 Altri pericoli.

La sostanza non è PBT
La sostanza non è vPvB
La sostanza non ha proprietà che alterano il sistema endocrino.

Durante il normale uso e nella sua forma originale, il prodotto non ha altri effetti negativi sulla salute e sull'ambiente.

SEZIONE 3: COMPOSIZIONE/INFORMAZIONI SUGLI INGREDIENTI.

3.1 Sostanze.

Identificatori	Nome	Concentrazione	(*)Classificazione - Regolamento 1272/2008	
			Classificazione	Limite di concentrazione specifico e la stima della tossicità acuta
N. della sostanza: 016-046-00-X N. CAS: 7681-38-1 N. CE: 231-665-7	idrogenosolfato di sodio	3 - 100 %	Eye Dam. 1, H318	-

3.2 Miscele.
Non Applicabile.

SEZIONE 4: MISURE DI PRIMO SOCCORSO.

4.1 Descrizione delle misure di primo soccorso.
In caso di dubbio o quando i sintomi di malessere persistono, consultare un medico. Non dare mai niente per bocca a persone incoscienti.

Inalazione.

-Continua alla prossima pagina.-

Mettere l'accidentato all'aria aperta, mantenerlo caldo e in riposo, se la respirazione è irregolare o si ferma, praticare respirazione artificiale.

Contatto con gli occhi.
Lavare abbondantemente gli occhi con acqua pulita e fresca per almeno 10 minuti tenendo le palpebre aperte. Cercare assistenza medica. Non permettere alla persona di strofinare l'occhio colpito.

Contatto con la pelle.
Togliere gli indumenti contaminati. Lavare la pelle vigorosamente con acqua e sapone o un detergente adeguato alla pelle. MAI utilizzare dissolventi o diluenti.

Ingestione.
Se accidentalmente si è ingerito, chiedere immediatamente attenzione medica. Mantenerla a riposo. MAI provocare il vomito.

4.2 Principali sintomi ed effetti, sia acuti che ritardati.
Prodotto corrosivo, il contatto con gli occhi o con la pelle può procurare bruciature; l'ingestione o inalazione può produrre danni interni. In quel caso è richiesta l'immediata attenzione medica.
Il contatto con gli occhi può causare danni irreversibili.

4.3 Indicazione dell'eventuale necessità di consultare immediatamente un medico e di trattamenti speciali.
Richiedere supporto medico immediato. Non dare mai niente per bocca a persone incoscienti. Non indurre il vomito. Se la persona vomita, liberare le vie respiratorie. Coprire la zona colpita con materiale da medicazione sterile asciutto. Proteggere dalla pressione o dalla frizione la zona colpita.

SEZIONE 5: MISURE DI LOTTA ANTINCENDIO.

Il prodotto NON è classificato come infiammabile, in caso di incendio dovrebbe seguire la procedura descritta di seguito:

5.1 Mezzi di estinzione.
Mezzi di estinzione idonei:
Estintore a polvere o CO2. In caso d'incendi più gravi anche schiuma resistente all'alcol e acqua polverizzata.

Mezzi di estinzione non idonei:
Non usare per l'estinzione spruzzo diretto d'acqua. In presenza di tensione elettrica non è accettabile l'utilizzo di acqua o spuma come mezzo di estinzione.

5.2 Pericoli speciali derivanti dalla sostanza o dalla miscela.
Rischi speciali.
L'esposizione ai prodotti di combustione o decomposizione può essere pregiudiziale per la salute.

5.3 Raccomandazioni per gli addetti all'estinzione degli incendi.
Raffreddare con acqua i depositi, cisterne o recipienti prossimi alla fonte di calore o fuoco. Tenere in conto la direzione del vento. Evitare che i prodotti utilizzati nella lotta contro l'incendio, passino a condotti, fognature o corsi d'acqua.

Equipaggiamento di protezione contro incendi.
Secondo la magnitudine dell'incendio, può essere necessario l'uso d'indumenti di protezione contro il calore, equipaggiamento respiratorio autonomo, guanti, occhiali protettori o maschere facciali e stivali.

SEZIONE 6: MISURE IN CASO DI RILASCIO ACCIDENTALE.

6.1 Precauzioni personali, dispositivi di protezione e procedure in caso di emergenza.
Per il controllo d'esposizione e misure di protezione individuale, vedere sezione 8.

-Continua alla prossima pagina.-

6.2 Precauzioni ambientali.

Non classificato come pericoloso per l'ambiente, evitare per quanto possibile, qualsiasi scarico.

6.3 Metodi e materiali per il contenimento e per la bonifica.

Contenere e raccogliere il prodotto eventualmente fuoriuscito con materiale assorbente inerte (terra, sabbia, vermiculite, terra diatomacea...) e pulire immediatamente la zona con un adeguato decontaminante.
Smaltire i resti di prodotto in contenitori chiusi e adatti allo smaltimento in conformità con le normative locali e nazionali (vedi sezione 13).

6.4 Riferimento ad altre sezioni.

Per il controllo d'esposizione e misure di protezione individuale, vedere sezione 8.
Per la successiva eliminazione dei residui, seguire le raccomandazioni della sezione 13.

SEZIONE 7: MANIPOLAZIONE E IMMAGAZZINAMENTO.

7.1 Precauzioni per la manipolazione sicura.

Per la protezione personale, vedere sezione 8.
Nella zona d'applicazione deve essere proibito fumare, mangiare e bere.
Rispettare la legislazione sulla sicurezza e l'igiene nel lavoro.
Attenzione: i recipienti non sono resistenti alla pressione, non impiegare mai la pressione per svuotare i contenitori. Conservare il prodotto in recipienti di un materiale identico all'originale.

7.2 Condizioni per lo stoccaggio sicuro, comprese eventuali incompatibilità.

Immagazzinare secondo la legislazione locale. Osservare le indicazioni dell'etichetta. Immagazzinare i recipienti tra 5 e 25 ºC, in un luogo secco e ben ventilato, lontano dal calore e dai raggi diretti del sole. Mantenere lontano da punti d'ignizione. Mantenere lontano da agenti ossidanti e da materiali fortemente acidi o alcalini. Non fumare. Evitare l'entrata a persone non autorizzate. Una volta aperti i recipienti, devono essere richiusi attentamente e collocati verticalmente per evitare spargimenti.

Il prodotto non viene pregiudicato dalla Direttiva 2012/18/EU (SEVESO III).

7.3 Usi finali particolari.

Nessun uso particolare.

SEZIONE 8: CONTROLLI DELL'ESPOSIZIONE/DELLA PROTEZIONE INDIVIDUALE.

8.1 Parametri di controllo.

Il prodotto NON contiene sostanze con Valori Limite Ambientali di esposizione professionale.Il prodotto NON contiene sostanze con Valori Limite Biologici.

8.2 Controlli dell'esposizione.

Misure d'ordine tecnico:
Provvedere ad una ventilazione adeguata, ottenibile mediante una buona estrazione-ventilazione locale e un buon sistema generale di estrazione.

Concentrazione:	**100 %**
Usi:	**Regolatore di pH**
Protezione respiratoria:	
Se si rispettano le misure tecniche raccomandate non è necessario nessuna attrezzatura di protezione individuale.	
Protezione delle mani:	
Se il prodotto viene manipolato correttamente non è necessaria nessuna attrezzatura di protezione individuale.	

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Protezione degli occhi:	
Se il prodotto viene manipolato correttamente non è necessaria nessuna attrezzatura di protezione individuale.	
Protezione della pelle:	
DPI:	Calzature di lavoro.
Caratteristiche:	Marchio «CE» Categoria II.
Norme CEN:	EN ISO 13287, EN 20347
Manutenzione:	Questi articoli si adattano alla forma del piede del primo utente. Per questo motivo, oltre ad una questione di igiene, è da evitare il riutilizzo da parte di altra persona.
Commenti:	La calzatura di lavoro per uso professionale è quella che aggiunge elementi di protezione destinati a proteggere l'utente dalle lesioni che potessero provocare gli incidenti. Deve verificarsi per quali lavori queste calzature sono adeguate.

SEZIONE 9: PROPRIETÀ FISICHE E CHIMICHE.

9.1 Informazioni sulle proprietà fisiche e chimiche fondamentali.

Stato fisico: Solid
Colore: bianco / giallo
Odore: Inodore
Soglia olfattiva: Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.
Punto di fusione: 180 ºC
Punto di congelamento: Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.
Punto di ebollizione o punto iniziale di ebollizione e intervallo di ebollizione: >200 ºC
Infiammabilità: Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.
Limite inferiore di esplosività: Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.
Limite superiore di esplosività: Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.
Punto di infiammabilità: Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.
Temperatura di autoaccensione: Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.
Temperatura di decomposizione: Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.
pH: 1 - 1,2 (20%)
Viscosità cinematica: Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.
Solubilità: Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.
Idrosolubilità: 1080 g/l (20 ºC)
Liposolubilità: Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.
Coefficiente di ripartizione n-ottanolo/acqua (valore logaritmico): Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.
Tensione di vapore: Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.
Densità assoluta: Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.
Densità relativa: 1.4 - 1.45
Densità di vapore relativa: Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.
Caratteristiche delle particelle: Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.

9.2 Altre informazioni.

Viscosità: Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.
Proprietà esplosive: Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.
Proprietà ossidanti: No
Punto di gocciolamento: Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.
Scintillazione: Non pertinente/Non disponibile a causa della natura/proprietà del prodotto.

SEZIONE 10: STABILITÀ E REATTIVITÀ.

10.1 Reattività.

Il prodotto non comporta pericoli per la sua reattività.

-Continua alla prossima pagina.-

10.2 Stabilità chimica.
Instabile in contatto con:
- Basi.

10.3 Possibilità di reazioni pericolose.
Può prodursi una neutralizzazione in contatto con basi.

10.4 Condizioni da evitare.
- Evitare el contatto con basi.

10.5 Materiali incompatibili.
Evitare i seguenti materiali:
- Basi.

10.6 Prodotti di decomposizione pericolosi.
Dipendendo dalle condizioni di impiego, possono generarsi i seguenti prodotti:
- Vapori o gas corrosivi.

SEZIONE 11: INFORMAZIONI TOSSICOLOGICHE.

11.1 Informazioni sulle classi di pericolo definite nel regolamento (CE) n. 1272/2008.
Gli schizzi negli occhi possono causare irritazione e danni reversibili.

Informazioni tossicologiche .

Nome	Tossicità acuta			
	Tipo	Prova	Specie	Valore
idrogenosolfato di sodio N. CAS: 7681-38-1 N. CE: 231-665-7	Orale	LD50	Rat	2140 mg/kg
	Cutanea			
	Inalazione	LD50	Rat	>2.4 mg/l (4 h)

a) tossicità acuta;
Dati non concludenti per la classificazione.

b) corrosione/irritazione cutanea;
Dati non concludenti per la classificazione.

c) lesioni oculari gravi/irritazioni oculari gravi;
Prodotto classificato:
Lesioni oculari gravi, Categoria 1: Provoca gravi lesioni oculari.

d) sensibilizzazione respiratoria o cutanea;
Dati non concludenti per la classificazione.

e) mutagenicità delle cellule germinali;
Dati non concludenti per la classificazione.

f) cancerogenicità;
Dati non concludenti per la classificazione.

g) tossicità per la riproduzione;

-Continua alla prossima pagina.-

Dati non concludenti per la classificazione.

h) tossicità specifica per organi bersaglio (STOT) - esposizione singola;
Dati non concludenti per la classificazione.

i) tossicità specifica per organi bersaglio (STOT) - esposizione ripetuta;
Dati non concludenti per la classificazione.

j) pericolo in caso di aspirazione.
Dati non concludenti per la classificazione.

11.2 Informazioni su altri pericoli.

Proprietà di interferenza con il sistema endocrino
Questo prodotto non contiene componenti con proprietà che alterano il sistema endocrino e hanno un effetto sulla salute umana.

Altre informazioni
Non esistono informazioni disponibili su altri effetti avversi per la salute.

SEZIONE 12: INFORMAZIONI ECOLOGICHE.

12.1 Tossicità.

Nome	Ecotossicità			
	Tipo	Prova	Specie	Valore
idrogenosolfato di sodio N. CAS: 7681-38-1 N. CE: 231-665-7	Pesci	LC50	Fish	7960 mg/l (96h)
	Invertebrati acquatici	LC50	Daphnia	1766 mg/l (48 h)
	Piante acquatiche	LC50	Algae	1900 mg/l (120 h)

12.2 Persistenza e degradabilità.

Non si hanno a disposizione informazioni relative alla biodegradabilità.
Non si hanno a disposizione informazioni relative alla degradabilità.
Non sono disponibili informazioni sulla persistenza e degradabilità del prodotto.

12.3 Potenziale di bioaccumulo.

Non si dispone d' informazione sul Bioaccumulo.

12.4 Mobilità nel suolo.

Non sono disponibili informazioni sulla mobilità nel suolo
È vietato lo smaltimento in fognature o corsi d’acqua.
Evitare la penetrazione nel terreno.

12.5 Risultati della valutazione PBT e vPvB.

Non sono disponibili informazioni sul prodotto PBT e vPvB.

12.6 Proprietà di interferenza con il sistema endocrino.

Questo prodotto non contiene componenti con proprietà che alterano il sistema endocrino e hanno un effetto sull’ambiente.

12.7 Altri effetti avversi.

Non ci sono informazioni su altri effetti negativi per l'ambiente.

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SEZIONE 13: CONSIDERAZIONI SULLO SMALTIMENTO.

13.1 Metodi di trattamento dei rifiuti.

È vietato lo smaltimento in fognature o corsi d'acqua. I residui e recipienti vuoti devono manipolarsi ed eliminarsi d'accordo con le legislazioni locale/nazionale vigenti.
Seguire le disposizioni della Direttiva 2008/98/CE relative alla gestione dei rifiuti.

SEZIONE 14: INFORMAZIONI SUL TRASPORTO.

Non pericoloso ai fini del trasporto. In caso di incidenti e lo smaltimento del prodotto di fungere da punto 6.

14.1 Numero ONU o numero ID.

Non pericoloso ai fini del trasporto.

14.2 Designazione ufficiale ONU di trasporto.

Descrizione:
ADR/RID: Non pericoloso ai fini del trasporto.
IMDG: Non pericoloso ai fini del trasporto.
ICAO/IATA: Non pericoloso ai fini del trasporto.

14.3 Classi di pericolo connesso al trasporto.

Non pericoloso ai fini del trasporto.

14.4 Gruppo di imballaggio.

Non pericoloso ai fini del trasporto.

14.5 Pericoli per l'ambiente.

Non pericoloso ai fini del trasporto.
Trasporto navele, FEm -Schede d'emergenza (F – Incendio, S – Spargimenti): Non Applicabile.

14.6 Precauzioni speciali per gli utilizzatori.

Non pericoloso ai fini del trasporto.

14.7 Trasporto marittimo alla rinfusa conformemente agli atti dell'IMO.

Non pericoloso ai fini del trasporto.

SEZIONE 15: INFORMAZIONI SULLA REGOLAMENTAZIONE.

15.1 Disposizioni legislative e regolamentari su salute, sicurezza e ambiente specifiche per la sostanza o la miscela.

Il prodotto non rientra nel campo di applicazione del Regolamento (CE) n. 1005/2009 del Parlamento europeo e del Consiglio, del 16 settembre 2009, sulle sostanze che riducono lo strato di ozono.

Composti organici volatili (COV)
Contenuto di COV (p/p): 0 %
Contenuto di COV: 0 g/l

Classificazione del prodotto in accordo con l'Allegato I della Direttiva 2012/18/EU (SEVESO III): N/A
Il prodotto non viene pregiudicato dal Regolamento (EU) No 528/2012 relativo alla commercializzazione e l'uso dei biocidi.
Il prodotto non viene pregiudicato dal procedimento stabilito nel Regolamento (EU) No 649/2012, relativo all'esportazione e importazione di prodotti chimici pericolosi.

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Categoria di inquinante per l'acqua (Germania): WGK 1: Poco pericoloso per l'acqua. (Autoclassificato in base al regolamento AwSV)

15.2 Valutazione della sicurezza chimica.

Non è stata effettuata una valutazione della sicurezza chimica del prodotto.
E' disponibile di uno Scenario di Esposizione del prodotto.

SEZIONE 16: ALTRE INFORMAZIONI.

Codici di classificazione:

Eye Dam. 1 : Lesioni oculari gravi, Categoria 1

Cambiare riguardanti la versione precedente:

- Modifica degli informazioni sulle proprietà fisiche e chimiche (SEZIONE 9).
- Modifica degli informazioni della condizioni per stabilità e reattività (SEZIONE 10.2).
- Modifica degli informazioni della condizioni per stabilità e reattività (SEZIONE 10.3).
- Modifica degli informazioni della condizioni per stabilità e reattività (SEZIONE 10.4).
- Modifica degli informazioni della condizioni per stabilità e reattività (SEZIONE 10.5).
- Modifica degli informazioni della condizioni per stabilità e reattività (SEZIONE 10.6).
- Modifiche delle leggi nazionali (SEZIONE 15.1).

Classificazione e procedura utilizzata per derivarla a norma del regolamento (CE) 1272/2008 [CLP] in relazione alle miscele:

Pericoli fisici	Sulla base di dati di sperimentazione
Pericoli per la salute	Metodo di calcolo
Pericoli per l'ambiente	Metodo di calcolo

Si consiglia di offrire formazione di base sulla sicurezza ed igiene sul lavoro per garantire una corretta manipolazione del prodotto.

E' disponibile di uno Scenario di Esposizione del prodotto.

Abbreviature ed acronimi utilizzati:

AwSV:	Regolamento relativo agli Impianti per la manipolazione di sostanze pericolose per l'acqua.
CEN:	Comitato Europeo di Normalizzazione.
EC50:	Concentrazione media effettiva.
DPI:	Squadra di protezione personale.
LC50:	Concentrazione letale, 50%.
LD50:	Dose letale, 50%.
WGK:	Classi di pericolo per l'ambiente acquatico.

Principalireferenze bibliografiche e fonti di dati:
http://eur-lex.europa.eu/homepage.html
http://echa.europa.eu/
Regolamento (UE) 2020/878.
Regolamento (CE) No 1907/2006.

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Regolamento (UE) No 1272/2008.

Questa scheda di Dati di Sicurezza è stata redatta secondo il REGOLAMENTO (UE) 2020/878 DELLA COMMISSIONE del 18 giugno 2020 recante che modifica l'allegato II del regolamento (CE) n. 1907/2006 del Parlamento europeo e del Consiglio concernente la registrazione, la valutazione, l'autorizzazione e la restrizione delle sostanze chimiche e miscele(REACH).

Le informazioni contenute in questa Scheda Dati di Sicurezza del Prodotto sono basate sulle conoscenze attuali e fornite nel rispetto delle leggi vigenti della CE e nazionali, siccome le condizioni di lavoro dell'utilizzatore sono fuori dalla nostra conoscenza e controllo. Il prodotto non deve utilizzarsi per fini diversi a quelli specificati senza prima ottenere indicazioni scritte sulle sue modalità di utilizzo. È sempre responsabilità dell'utilizzatore prendere le misure appropriate per ottemperare alle disposizioni della legislazione vigente.

-Fine della scheda di dati di sicurezza.-

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

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**						
9.1	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 m^3/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 m^3/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 1m^3 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.