

**SAFETY DATA SHEET****Sodium cyanide, solution 30%****SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

**Product name** : Sodium cyanide, solution 30%  
**Internal code** : WW12204  
**Chemical formula** : Not applicable.  
**REACH Registration number** : 01-2119480141-49-0002

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses	
Production of Sodium cyanide Industrial use resulting in manufacture of another substance (use of intermediates) Chemical. Pharmaceuticals. Metal cleaning. Metal degreaser. Depressants Extraction agents Recycling metal Electroplating.	
Uses advised against	Reason
Production of chemical weapons and narcotics cyanide fishing Pest control Fertilisers. Disinfectants. Pest control Consumer uses: Private households (= general public = consumers)	- - - - - - -

Not applicable.

**1.3 Details of the supplier of the safety data sheet**

**Supplier** : DSM Acrylonitrile B.V.  
 P.O. Box 43  
 6130 AA Sittard  
 The Netherlands  
**e-mail address of person responsible for this SDS** : Info.Worldwise@dsm.com

**1.4 Emergency telephone number**

**Emergency telephone number** : Netherlands: +31 46 476 55 55  
 Fax: +31 46 476 64 40

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture**

**Product definition** : Mixture

**Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]**

Acute Tox. 2, H300  
 Acute Tox. 1, H310  
 Acute Tox. 1, H330  
 Skin Irrit. 2, H315  
 Eye Irrit. 2, H319  
 STOT RE 1, H372o  
 STOT RE 1, H372i  
 Aquatic Acute 1, H400  
 Aquatic Chronic 1, H410

See Section 16 for the full text of the H statements declared above.

**Classification according to Directive 1999/45/EC [DPD]**

The product is classified as dangerous according to Directive 1999/45/EC and its amendments.

**Classification** : T+; R26/27/28  
 Xi; R36/38  
 R32  
 N; R50/53

**Remarks** : This very toxic gas is hydrogen cyanide (HCN / hydrocyanic acid).

See section 16 for the full text of the R-phrases declared above

## 2.2 Label elements

### Hazard pictograms



### Signal word

: Danger

### Hazard statements

: H300 - Fatal if swallowed.  
 H310 - Fatal in contact with skin.  
 H330 - Fatal if inhaled.  
 H315 - Causes skin irritation.  
 H319 - Causes serious eye irritation.  
 H372i - Causes damage to organs through prolonged or repeated exposure if inhaled.  
 H372o - Causes damage to organs through prolonged or repeated exposure if swallowed.  
 H410 - Very toxic to aquatic life with long lasting effects.

### Supplemental label elements

: Contact with acids liberates very toxic gas.

### Precautionary statements

#### Prevention

: Wear protective gloves: 4-8 hours (breakthrough time): butyl rubber - PVC - nitrile rubber - neoprene. Wear eye or face protection. Wear respiratory protection. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Do not get in eyes, on skin, or on clothing. Do not breathe vapour. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

#### Response

: Collect spillage. Get medical attention if you feel unwell.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or physician.

IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth.

IF ON SKIN: Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. Immediately call a POISON CENTER or physician. Wash contaminated clothing before reuse.

If skin irritation occurs: Get medical attention.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical attention.

#### Storage

: Store locked up.

#### Disposal

: Dispose of contents and container in accordance with all local, regional, national and international regulations.

#### Hazardous ingredients

: sodium cyanide  
 sodium hydroxide

## 2.3 Other hazards

Other hazards which do not result in classification : Not available.

## SECTION 3: Composition/information on ingredients

Substance/mixture : Mixture

Product/ingredient name	Identifiers	%	Classification	
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]
sodium cyanide	RRN: 01-2119480141-49 EC: 205-599-4 CAS: 143-33-9 Index: 006-007-00-5	29.5 - 30.5	T+; R26/27/28 R32 N; R50/53	Met. Corr. 1, H290 Acute Tox. 1, H300 Acute Tox. 1, H310 Acute Tox. 1, H330 STOT RE 1, H372o STOT RE 1, H372i Aquatic Acute 1, H400 Aquatic Chronic 1, H410
sodium hydroxide	EC: 215-185-5 CAS: 1310-73-2 Index: 011-002-00-6	0.4 - 1	C; R35	Skin Corr. 1A, H314 Eye Dam. 1, H318

See section 16 for the full text of the R-phrases declared above

See Section 16 for the full text of the H statements declared above.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

- Remarks** : Specific first aid and treatment are necessary. The needed resources and their instructions for use must be present. Do not apply mouth-to-mouth resuscitation. Upon exposure always get medical aid as soon as possible. Immediately call for assistance ("buddy"). If the patient is unconscious or has stopped breathing and has no pulse (in all probability cyanide poisoning), then have immediately administered antidote by a trained first aid assistant or physician. Keep the patient under medical observation (for about 24 hours). Also in these later stages, symptoms of CN poisoning may occur. Let the victim rest in half upright position and administer oxygen (preferably 100%).
- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. Gently wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

### 4.2 Most important symptoms and effects, both acute and delayed

#### Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Fatal if inhaled. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : Fatal in contact with skin. Causes skin irritation.
- Ingestion** : Fatal if swallowed. Irritating to mouth, throat and stomach.

#### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : No specific data.

### 4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Small fire

- Suitable** : Alkaline powder quenching agent.  
**Not suitable** : None known.

#### Large fire

- Suitable** : Alkaline powder quenching agent.  
**Not suitable** : None known.

### 5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : In a fire or if heated, a pressure increase will occur and the container may burst. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

- Hazardous combustion products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides  
metal oxide/oxides  
In case of fire: Hydrogen cyanide (HCN).

### 5.3 Advice for firefighters

- Special precautions for fire-fighters** : Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

- Remarks** : Use water spray to keep fire-exposed containers cool.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

### 6.2 Environmental precautions

- : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

### 6.3 Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

- Large spill** : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

### 6.4 Reference to other sections

- : See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

- Remarks** : Immediately call for assistance ("buddy"). Evacuate surrounding areas. Approach the release from upwind. Neutralize the residue with a suitable diluted agent. = Water

**SECTION 7: Handling and storage**

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

**7.1 Precautions for safe handling**

**Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from acids. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

**7.2 Conditions for safe storage, including any incompatibilities**

: Do not store above the following temperature: 40°C (104°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Store locked up. Separate from acids. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

**Packaging materials**

**Suitable** : Stainless steel . Carbon steel : Beware of cyanide stress corrosion cracking.  
**Not suitable** : aluminium Copper., zinc.

**7.3 Specific end use(s)**

**Recommendations** : Not available.

**Industrial sector specific solutions** : Not available.

**Remarks** : Do not work alone when handling cyanides.

**SECTION 8: Exposure controls/personal protection**

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

**8.1 Control parameters****Occupational exposure limits**

Product/ingredient name	Exposure limit values
sodium cyanide	<b>ACGIH TLV (United States, 2/2010). Absorbed through skin.</b> C: 5 mg/m <sup>3</sup> , (measured as CN)
sodium hydroxide	<b>ACGIH TLV (United States, 2/2010).</b> C: 2 mg/m <sup>3</sup>

**Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

**Derived effect levels**

Product/ingredient name	Type	Exposure	Value	Population
sodium cyanide	DNEL	Long term Dermal	0.102 mg/kg bw/day	Workers
	DNEL	Long term Inhalation	0.72 mg/m <sup>3</sup>	Workers
	DNEL	Short term Dermal	3.03 mg/kg bw/day	Workers
	DNEL	Short term Inhalation	9.4 mg/m <sup>3</sup>	Workers

**Predicted effect concentrations**

Product/ingredient name	Type	Compartment Detail	Value	Method Detail
sodium cyanide	PNEC	Fresh water	1 µg/l	Assessment Factors

**8.2 Exposure controls**

**Appropriate engineering controls** : Use only with adequate ventilation. Engineering controls may be required to control the primary or secondary risks associated with this product. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

**Individual protection measures**

<b>Hygiene measures</b>	: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
<b>Eye/face protection</b>	: Full-face mask
<b>Hand protection</b>	: 4-8 hours (breakthrough time): butyl rubber - PVC - nitrile rubber - neoprene
<b>Skin and body</b>	: Chemical-resistant protective suit.
<b>Respiratory protection</b>	: Self-contained breathing apparatus. (airhood, air fed respirator).
<b>Environmental exposure controls</b>	: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

**Advice on personal protection is applicable for high exposure levels. Select proper personal protection based on a risk assessment of the actual exposure situation.**

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

<b>Physical state</b>	: Liquid.
<b>Colour</b>	: Colourless.
<b>Odour</b>	: Almond-like.
<b>Odour threshold</b>	: Not available.
<b>pH</b>	: 11.8 to 12.1 (Concentration 30%)
<b>Melting point</b>	: 0 °C
<b>Initial boiling point and boiling range</b>	: 112 °C
<b>Softening range</b>	: Not available.
<b>Flash point</b>	: Not applicable.
<b>Evaporation rate</b>	: Not available.
<b>Flammability (solid, gas)</b>	: Not available.
<b>Burning time</b>	: Not applicable.
<b>Burning rate</b>	: Not applicable.
<b>Upper/lower flammability or explosive limits</b>	: Not available.
<b>Vapour pressure</b>	: 2.3 kPa
<b>Vapour density</b>	: 0.93 (Air = 1)
<b>Relative density</b>	: Not available.
<b>Density ( g/cm<sup>3</sup> )</b>	: 1.16 g/cm <sup>3</sup> (20°C)
<b>Bulk density</b>	: Not available.
<b>Solubility</b>	: Easily soluble in the following materials: cold water. Soluble in the following materials: methanol.
<b>Solubility in water</b>	: Not available.
<b>Solubility at room temperature</b>	: Not available.
<b>Partition coefficient: n-octanol/water</b>	: 0.6
<b>Auto-ignition temperature</b>	: Not applicable.
<b>Decomposition temperature</b>	: Not available.
<b>Viscosity</b>	: Not available.
<b>Explosive properties</b>	: Not available.
<b>Oxidising properties</b>	: Not available.

### 9.2 Other information

**Remarks** : Vapours may form explosive mixtures with air.

## SECTION 10: Stability and reactivity

<b>10.1 Reactivity</b>	: No specific test data related to reactivity available for this product or its ingredients.
<b>10.2 Chemical stability</b>	: The product is stable.
<b>10.3 Possibility of hazardous reactions</b>	: Hazardous reactions or instability may occur under certain conditions of storage or use. Conditions may include the following: contact with acids Reactions may include the following: liberation of toxic gas

**10.4 Conditions to avoid** : No specific data.

**10.5 Incompatible materials** : Reactive or incompatible with the following materials:  
acids  
air . Exothermic reaction with: oxidising agents .

**10.6 Hazardous decomposition products** : Hydrogen cyanide (HCN).

**Remarks** : Depending on temperature and time of storage ammonia (NH<sub>3</sub>) can be released (hydrolysis).

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Sodium cyanide, solution 30%	LD50 Dermal	Human/30 min	10 mg/kg	-
	LD50 Oral	Rat	25 mg/kg	-
sodium cyanide	LD50 Dermal	Rabbit	300 mg/kg	-
	LD50 Dermal	Rabbit	10400 ug/kg	-
	LD50 Oral	Rat	4.7 mg/kg	-
	LD50 Oral	Domestic animals.	4 mg/kg	-
sodium hydroxide	LD50 Oral	Rat	6440 ug/kg	-
	LDLo Oral	Rabbit	500 mg/kg	-
	TDL <sub>0</sub> Oral	Rat	44 mg/kg	-

**Conclusion/Summary** : Not available.

#### Acute toxicity estimates

Route	ATE value
Dermal	34.11 mg/kg
Inhalation (dusts and mists)	0.0164 mg/l

#### Irritation/Corrosion

##### Conclusion/Summary

**Skin** : Not available.

**Eyes** : Not available.

**Respiratory** : Not available.

#### Sensitiser

##### Conclusion/Summary

**Skin** : Not available.

**Respiratory** : Not available.

#### Mutagenicity

**Conclusion/Summary** : Not available.

#### Carcinogenicity

**Conclusion/Summary** : Not available.

#### Reproductive toxicity

**Conclusion/Summary** : Not available.

#### Teratogenicity

**Conclusion/Summary** : Not available.

#### Specific target organ toxicity (single exposure)

Not available.

#### Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
sodium cyanide	Category 1	Oral Inhalation	thyroid thyroid

#### Aspiration hazard

Not available.

#### Potential acute health effects

**Inhalation** : Fatal if inhaled. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

**Ingestion** : Fatal if swallowed. Irritating to mouth, throat and stomach.

**Skin contact** : Fatal in contact with skin. Causes skin irritation.

**Eye contact** : Causes serious eye irritation.

#### Symptoms related to the physical, chemical and toxicological characteristics

<b>Inhalation</b>	: No specific data.
<b>Ingestion</b>	: No specific data.
<b>Skin contact</b>	: Adverse symptoms may include the following: irritation redness
<b>Eye contact</b>	: Adverse symptoms may include the following: pain or irritation watering redness
<b>General</b>	: Causes damage to organs through prolonged or repeated exposure if inhaled or swallowed.
<b>Carcinogenicity</b>	: No known significant effects or critical hazards.
<b>Mutagenicity</b>	: No known significant effects or critical hazards.
<b>Teratogenicity</b>	: No known significant effects or critical hazards.
<b>Developmental effects</b>	: No known significant effects or critical hazards.
<b>Fertility effects</b>	: No known significant effects or critical hazards.

**Classification**

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
sodium cyanide	-	-	-	None.	-	-

**SECTION 12: Ecological information****12.1 Toxicity**

Product/ingredient name	Result	Species	Exposure	Effects
Sodium cyanide, solution 30%	Acute EC50 0.1 mg/L	Daphnia	48 hours	-
sodium cyanide	Acute LC50 0.1 mg/L	Fish	96 hours	-
	Acute EC50 0.05 mg/l Fresh water	Algae	72 hours	-
	Acute LC50 0.05 mg/l Fresh water	Fish	96 hours	-

**Conclusion/Summary** : Not available.

**12.2 Persistence and degradability**

**Conclusion/Summary** : Not available.

**12.3 Bioaccumulative potential**

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Sodium cyanide, solution 30%	0.6	-	low
sodium cyanide	-0.25	-	low
sodium hydroxide	-3.88	-	low

**12.4 Mobility in soil**

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Mobility** : Not available.

**12.5 Results of PBT and vPvB assessment**

**PBT** : Not applicable.

**vPvB** : Not applicable.

**12.6 Other adverse effects** : No known significant effects or critical hazards.

**SECTION 13: Disposal considerations**

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

**13.1 Waste treatment methods****Product**

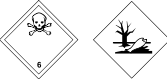



**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

**Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

**Packaging**

- Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.
- Special precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

## SECTION 14: Transport information

	ADR/RID	ADN/ADNR	IMDG	IATA
14.1 UN number	UN3414	UN3414	UN3414	UN3414
14.2 UN proper shipping name	SODIUM CYANIDE SOLUTION	SODIUM CYANIDE SOLUTION	SODIUM CYANIDE SOLUTION. Marine pollutant (sodium cyanide)	Sodium cyanide solution
14.3 Transport hazard class(es)	6.1 	6.1 	6.1 	6.1 
14.4 Packing group	I	I	I	I
14.5 Environmental hazards	Yes.	Yes.	Yes.	Yes.
14.6 Special precautions for user	Not available.	Not available.	Not available.	Not available.
Additional information	<b>Hazard identification number</b> 66 <b>Limited quantity</b> LQ0 <b>Tunnel code</b> (C/E)	-	<b>Emergency schedules (EmS)</b> F-A, S-A  Marine pollutant	<b>Passenger and Cargo Aircraft</b> Quantity limitation: 1 L Packaging instructions: 603 <b>Cargo Aircraft Only</b> Quantity limitation: 30 L Packaging instructions: 604 <b>Limited Quantities - Passenger Aircraft</b> Quantity limitation: Forbidden Packaging instructions: Forbidden

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Not applicable.

15.2 Chemical Safety Assessment : Complete.

**SECTION 16: Other information**

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Acute Tox. 2, H300	On basis of test data
Acute Tox. 1, H310	Calculation method
Acute Tox. 1, H330	Calculation method
Skin Irrit. 2, H315	Calculation method
Eye Irrit. 2, H319	Calculation method
STOT RE 1, H372o	Calculation method
STOT RE 1, H372i	Calculation method
Aquatic Acute 1, H400	On basis of test data
Aquatic Chronic 1, H410	Calculation method

**Full text of abbreviated H statements**

: H290 May be corrosive to metals.  
H300 Fatal if swallowed.  
H310 Fatal in contact with skin.  
H314 Causes severe skin burns and eye damage.  
H315 Causes skin irritation.  
H318 Causes serious eye damage.  
H319 Causes serious eye irritation.  
H330 Fatal if inhaled.  
H372i Causes damage to organs through prolonged or repeated exposure if inhaled.  
H372o Causes damage to organs through prolonged or repeated exposure if swallowed.  
H400 Very toxic to aquatic life.  
H410 Very toxic to aquatic life with long lasting effects.

**Full text of classifications [CLP/GHS]**

: Acute Tox. 1, H300 ACUTE TOXICITY: ORAL - Category 1  
Acute Tox. 1, H310 ACUTE TOXICITY: SKIN - Category 1  
Acute Tox. 1, H330 ACUTE TOXICITY: INHALATION - Category 1  
Acute Tox. 2, H300 ACUTE TOXICITY: ORAL - Category 2  
Aquatic Acute 1, H400 AQUATIC TOXICITY (ACUTE) - Category 1  
Aquatic Chronic 1, H410 AQUATIC TOXICITY (CHRONIC) - Category 1  
Eye Dam. 1, H318 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1  
Eye Irrit. 2, H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2  
Met. Corr. 1, H290 CORROSIVE TO METALS - Category 1  
Skin Corr. 1A, H314 SKIN CORROSION/IRRITATION - Category 1A  
Skin Irrit. 2, H315 SKIN CORROSION/IRRITATION - Category 2  
STOT RE 1, H372i SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE): INHALATION [thyroid] - Category 1  
STOT RE 1, H372o SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE): ORAL [thyroid] - Category 1

**Full text of abbreviated R phrases**

: R26/27/28- Very toxic by inhalation, in contact with skin and if swallowed.  
R35- Causes severe burns.  
R36/38- Irritating to eyes and skin.  
R32- Contact with acids liberates very toxic gas.  
R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Full text of classifications [DSD/DPD]**

: T+ - Very toxic  
C - Corrosive  
Xi - Irritant  
N - Dangerous for the environment

**Alterations compared to the previous version**

: Alterations compared to the previous version are marked with a little (blue) triangle.

**Abbreviations and acronyms**

: ATE = Acute Toxicity Estimate  
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]  
DNEL = Derived No Effect Level  
EUH statement = CLP-specific Hazard statement  
PNEC = Predicted No Effect Concentration  
RRN = REACH Registration Number

**Sources of key data**

: Literature data and/or investigation reports are available through the manufacturer.

**Internal code**

: WW12204

**Training advice**

: Handling of this substance or preparation is restricted to skilled personnel only.

**Notice to reader**

The information contained in the Safety Data Sheet is based on our data available on the date of publication. The information is intended to aid the user in controlling the handling risks; it is not to be construed as a warranty or specification of the product quality. The information may not be or may not altogether be applicable to combinations of the product with other substances or to particular applications.

The user is responsible for ensuring that appropriate precautions are taken and for satisfying themselves that the data are suitable and sufficient for the product's intended purpose. In case of any unclarity we advise consulting the supplier or an expert.

**History**

**Date of printing** : 30 November 2010.  
**Date of issue** : 30 November 2010  
**Version** : 2.02



## Annex to the extended Safety Data Sheet (eSDS)

Industrial

### Identification of the substance or mixture

Product definition : Mixture  
 Code : WW12204  
 Product name : Sodium cyanide, solution 30%

### Section 1 - Title

Short title of the exposure scenario : Sodium Cyanide\_143-33-9\_ES1\_liquid

List of use descriptors : **Identified use name:** Production of Sodium cyanide  
**Process Category:** PROC02, PROC08b  
**Substance supplied to that use in form of:** As such  
**Sector of end use:** SU03, SU08  
**Subsequent service life relevant for that use:** No.  
**Environmental Release Category:** ERC01  
**Market sector by type of chemical product:** Not applicable.  
**Article category related to subsequent service life:** Not applicable.

Environmental contributing scenarios : **Manufacture of substances - ERC01**

Health Contributing scenarios : **Use in closed, continuous process with occasional controlled exposure - PROC02**  
**Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities - PROC08b**

Number of the ES : 1

### Section 2 - Exposure controls

#### Contributing exposure scenario controlling environmental exposure for 0: Manufacture of substances

Product Characteristics : liquid

Frequency and duration of use : Exposure duration per day:24 hours  
 Exposure duration per year:360 days

Environmental factors not influenced by risk management : Receiving surface water flow is 18000 m<sup>3</sup>/d.

Other operational conditions of use affecting environmental exposure : Temperature 80 - 100 °C  
 Closed system  
 Control of pH.

Technical conditions and measures at process level (source) to prevent release : see part 2 of this exposure scenario. Exposure scenario worker

#### Contributing exposure scenario controlling worker exposure for 0: Use in closed, continuous process with occasional controlled exposure

Concentration of substance in mixture or article : Covers percentage substance in the product up to 25%.

Physical state : liquid

Frequency and duration of use : Exposure duration per day:1 - 4 hours  
 Exposure duration per week: 5 workdays/week.

Other operational conditions affecting worker exposure : 0 - 80°C  
 Closed system  
 Indoor.

Technical conditions and measures to control dispersion from source towards the worker : Work only on solid, impervious surfaces.  
 Use isolated drainage to prevent discharge to soil.  
 Methods and materials for containment and cleaning up  
 Use extractor hood (laboratory).  
 with local exhaust ventilation

Organisational measures to prevent/limit releases, dispersion and exposure : Obtain special instructions before use. Do not work alone when handling cyanides.  
 Handle and open container with care. Keep locked up. Accessible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment.  
 Control of pH.

Conditions and measures related to personal protection, hygiene and health evaluation

Personal protection : Wear suitable gloves (tested to EN374), coverall and eye protection.  
 Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC  
 Boots.rubber

**Respiratory protection** : No personal respiratory protective equipment normally required.

**Contributing exposure scenario controlling worker exposure for 1: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities**

**Concentration of substance in mixture or article** : Covers percentage substance in the product up to 25%.

**Physical state** : liquid

**Frequency and duration of use** : Exposure duration per day: hours > 4 h (half shift).  
Exposure duration per week: 5 workdays/week.

**Other operational conditions affecting worker exposure** : 0 - 80°C  
Closed system  
Indoor.

**Technical conditions and measures to control dispersion from source towards the worker** : Work only on solid, impervious surfaces.  
Use isolated drainage to prevent discharge to soil.  
Methods and materials for containment and cleaning up  
Use extractor hood (laboratory).  
with local exhaust ventilation

**Organisational measures to prevent/limit releases, dispersion and exposure** : Obtain special instructions before use. Do not work alone when handling cyanides.  
Handle and open container with care. Keep locked up. Accessible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment.  
Control of pH.

**Conditions and measures related to personal protection, hygiene and health evaluation**

**Personal protection** : Wear suitable gloves (tested to EN374), coverall and eye protection.  
Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC  
Boots.rubber

**Respiratory protection** : Half-face mask (DIN EN 140) APF 1

### Section 3 - Exposure estimation and reference to its source

**Website:** : Not applicable.

**Exposure estimation and reference to its source - Environment: 0: Manufacture of substances**

**Exposure assessment (environment):** : Used EUSES model.

**Exposure estimation** : PEC Environment, water, continuous: Fresh water 0.000598 mg/l. Risk characterisation ratio (PEC/PNEC) = 0.598  
PEC Environment, water, continuous: Marine water 0.0000659 mg/l. Risk characterisation ratio (PEC/PNEC) = 0.0659

**Exposure estimation and reference to its source - Workers: 1: Use in closed, continuous process with occasional controlled exposure**

**Exposure assessment (human):** : Used ECETOC TRA model.

**Exposure estimation** : Long term exposure - Dermal 0.00685 mg/kg bw/day. Risk characterisation ratio = 0.0685  
Long term exposure - Inhalation 0.122 mg/m<sup>3</sup>. Risk characterisation ratio = 0.170  
Short term exposure - Dermal 0.00685 mg/kg bw/day. Risk characterisation ratio = 0.0685  
Short term exposure - Inhalation 1.22 mg/m<sup>3</sup>. Risk characterisation ratio = 0.130

**Exposure estimation and reference to its source - Workers: 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities**

**Exposure assessment (human):** : Used ECETOC TRA model.

**Exposure estimation** : Long term exposure - Dermal 0.0342 mg/kg bw/day. Risk characterisation ratio = 0.342  
Long term exposure - Inhalation 0.0306 mg/m<sup>3</sup>. Risk characterisation ratio = 0.0425  
Short term exposure - Dermal 0.0342 mg/kg bw/day. Risk characterisation ratio = 0.342  
Short term exposure - Inhalation 0.183 mg/m<sup>3</sup>. Risk characterisation ratio = 0.0195

### Section 4 - Guidance to Downstream User to evaluate if he works inside the boundaries set by the ES

**Environment** : Not available.

**Health** : Not available.

### Additional good practice advice beyond the REACH CSA

**Environment** : Not available.

**Health** : Not available.

## Annex to the extended Safety Data Sheet (eSDS)

Industrial

### Identification of the substance or mixture

Product definition : Mixture  
 Code : WW12204  
 Product name : Sodium cyanide, solution 30%

### Section 1 - Title

Short title of the exposure scenario : Sodium Cyanide\_143-33-9\_ES2\_liquid

List of use descriptors : **Identified use name:** Industrial use resulting in manufacture of another substance (use of intermediates)  
 Chemical.  
 Pharmaceuticals.  
**Process Category:** PROC01, PROC02, PROC03, PROC15  
**Substance supplied to that use in form of:** As such  
**Sector of end use:** SU01, SU03, SU08, SU09, SU11  
**Subsequent service life relevant for that use:** No.  
**Environmental Release Category:** ERC06a  
**Market sector by type of chemical product:** PC19  
**Article category related to subsequent service life:** Not applicable.

Environmental contributing scenarios : **Industrial use resulting in manufacture of another substance (use of intermediates) - ERC06a**

Health Contributing scenarios : **Use in closed process, no likelihood of exposure - PROC01**  
**Use in closed, continuous process with occasional controlled exposure - PROC02**  
**Use in closed batch process (synthesis or formulation) - PROC03**  
**Use as laboratory reagent - PROC15**

Number of the ES : 2

### Section 2 - Exposure controls

#### Contributing exposure scenario controlling environmental exposure for 0: Industrial use resulting in manufacture of another substance (use of intermediates)

Product Characteristics : liquid solution

Frequency and duration of use : Exposure duration per day: 24 hours  
 Exposure duration per year: 360 days

Environmental factors not influenced by risk management : Receiving surface water flow is 18000 m<sup>3</sup>/d.

Other operational conditions of use affecting environmental exposure : Temperature 0 - 90°C  
 Closed system  
 Control of pH.

Technical conditions and measures at process level (source) to prevent release : see part 2 of this exposure scenario. Exposure scenario worker

#### Contributing exposure scenario controlling worker exposure for 0: Use in closed process, no likelihood of exposure

Concentration of substance in mixture or article : Covers percentage substance in the product up to 25%.

Physical state : liquid

Frequency and duration of use : Exposure duration per day: 1 - 4 hours  
 Exposure duration per week: 5 workdays/week.

Other operational conditions affecting worker exposure : Indoor.  
 Closed system  
 Temperature 0 - 90°C

Technical conditions and measures to control dispersion from source towards the worker : Work only on solid, impervious surfaces.  
 Use isolated drainage to prevent discharge to soil.  
 Methods and materials for containment and cleaning up  
 Use extractor hood (laboratory).  
 with local exhaust ventilation

Organisational measures to prevent/limit releases, dispersion and exposure : Obtain special instructions before use. Do not work alone when handling cyanides.  
 Handle and open container with care. Keep locked up. Accessible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment.  
 Control of pH.

**Conditions and measures related to personal protection, hygiene and health evaluation**

- Personal protection** : Wear suitable gloves (tested to EN374), coverall and eye protection.  
Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC  
Boots.rubber

**Contributing exposure scenario controlling worker exposure for 1: Use in closed, continuous process with occasional controlled exposure**

- Concentration of substance in mixture or article** : Covers percentage substance in the product up to 25%.
- Physical state** : liquid
- Frequency and duration of use** : Exposure duration per day:1 - 4 hours  
Exposure duration per week: 5 workdays/week.
- Other operational conditions affecting worker exposure** : Indoor.  
Closed system  
Temperature 0 - 90°C
- Technical conditions and measures to control dispersion from source towards the worker** : Work only on solid, impervious surfaces.  
Use isolated drainage to prevent discharge to soil.  
Methods and materials for containment and cleaning up  
Use extractor hood (laboratory).  
with local exhaust ventilation
- Organisational measures to prevent/limit releases, dispersion and exposure** : Obtain special instructions before use. Do not work alone when handling cyanides.  
Handle and open container with care. Keep locked up. Accesible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment.  
Control of pH.

**Conditions and measures related to personal protection, hygiene and health evaluation**

- Personal protection** : Wear suitable gloves (tested to EN374), coverall and eye protection.  
Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC  
Boots.rubber
- Respiratory protection** : No personal respiratory protective equipment normally required.

**Contributing exposure scenario controlling worker exposure for 2: Use in closed batch process (synthesis or formulation)**

- Concentration of substance in mixture or article** : Covers percentage substance in the product up to 25%.
- Physical state** : liquid
- Frequency and duration of use** : Exposure duration per day:1 - 4 hours  
Exposure duration per week: 5 workdays/week.
- Other operational conditions affecting worker exposure** : Indoor.  
Closed system  
Temperature 0 - 90°C
- Technical conditions and measures to control dispersion from source towards the worker** : Work only on solid, impervious surfaces.  
Use isolated drainage to prevent discharge to soil.  
Methods and materials for containment and cleaning up  
Use extractor hood (laboratory).  
with local exhaust ventilation
- Organisational measures to prevent/limit releases, dispersion and exposure** : Obtain special instructions before use. Do not work alone when handling cyanides.  
Handle and open container with care. Keep locked up. Accesible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment.  
Control of pH.

**Conditions and measures related to personal protection, hygiene and health evaluation**

- Personal protection** : Wear suitable gloves (tested to EN374), coverall and eye protection.  
Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC  
Boots.rubber

**Contributing exposure scenario controlling worker exposure for 3: Use as laboratory reagent**

<b>Concentration of substance in mixture or article</b>	: < 1% residue
<b>Physical state</b>	: liquid
<b>Frequency and duration of use</b>	: Exposure duration per day: 0.25 - 1 hours Exposure duration per week: 5 workdays/week.
<b>Other operational conditions affecting worker exposure</b>	: 20 - 80 °C
<b>Technical conditions and measures to control dispersion from source towards the worker</b>	: Work only on solid, impervious surfaces. Use isolated drainage to prevent discharge to soil. Methods and materials for containment and cleaning up Use extractor hood (laboratory). with local exhaust ventilation
<b>Organisational measures to prevent/limit releases, dispersion and exposure</b>	: Obtain special instructions before use. Do not work alone when handling cyanides. Handle and open container with care. Keep locked up. Accesible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment. Control of pH.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
<b>Personal protection</b>	: Wear suitable gloves (tested to EN374), coverall and eye protection. Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC Boots.rubber
<b>Respiratory protection</b>	: Half-face mask (DIN EN 140) APF 1

**Section 3 - Exposure estimation and reference to its source**

**Website:** : Not applicable.

**Exposure estimation and reference to its source - Environment: 0: Industrial use resulting in manufacture of another substance (use of intermediates)**

<b>Exposure assessment (environment):</b>	: Used EUSES model.
<b>Exposure estimation</b>	: PEC Environment, water, continuous: Fresh water 0.000204 mg/l. Risk characterisation ratio (PEC/PNEC): = 0.204 PEC Environment, water, continuous: Marine water 0.0000206 mg/l. Risk characterisation ratio (PEC/PNEC): = 0.206

**Exposure estimation and reference to its source - Workers: 1: Use in closed process, no likelihood of exposure**

<b>Exposure assessment (human):</b>	: Used ECETOC TRA model.
<b>Exposure estimation</b>	: Long term exposure - Dermal 0.000942 mg/kg bw/day. Risk characterisation ratio = 0.0188 Long term exposure - Inhalation 0.00404 mg/m <sup>3</sup> . Risk characterisation ratio = 0.00539 Short term exposure - Dermal 0.000942 mg/kg bw/day. Risk characterisation ratio = 0.0188 Short term exposure - Inhalation 0.0404 mg/m <sup>3</sup> . Risk characterisation ratio = 0.00808

**Exposure estimation and reference to its source - Workers: 2: Use in closed, continuous process with occasional controlled exposure**

<b>Exposure assessment (human):</b>	: Used ECETOC TRA model.
<b>Exposure estimation</b>	: Long term exposure - Dermal 0.00685 mg/kg bw/day. Risk characterisation ratio = 0.0685 Long term exposure - Inhalation 0.073 mg/m <sup>3</sup> . Risk characterisation ratio = 0.102 Short term exposure - Dermal 0.00685 mg/kg bw/day. Risk characterisation ratio = 0.0685 Short term exposure - Inhalation 0.735 mg/m <sup>3</sup> . Risk characterisation ratio = 0.0782

**Exposure estimation and reference to its source - Workers: 3: Use in closed batch process (synthesis or formulation)**

<b>Exposure assessment (human):</b>	: Used ECETOC TRA model.
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**Exposure estimation** : Long term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171  
Long term exposure - Inhalation 0.220 mg/m<sup>3</sup>. Risk characterisation ratio = 0.306  
Short term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171  
Short term exposure - Inhalation 2.205 mg/m<sup>3</sup>. Risk characterisation ratio = 0.234

**Exposure estimation and reference to its source - Workers: 4: Use as laboratory reagent**

**Exposure assessment (human):** : Used ECETOC TRA model.

**Exposure estimation** : Long term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171  
Long term exposure - Inhalation 0.0408 mg/m<sup>3</sup>. Risk characterisation ratio = 0.0567  
Short term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171  
Short term exposure - Inhalation 1.225 mg/m<sup>3</sup>. Risk characterisation ratio = 0.13

**Section 4 - Guidance to Downstream User to evaluate if he works inside the boundaries set by the ES**

**Environment** : Not available.

**Health** : Not available.

**Additional good practice advice beyond the REACH CSA**

**Environment** : Not available.

**Health** : Not available.

## Annex to the extended Safety Data Sheet (eSDS)

Industrial

### Identification of the substance or mixture

Product definition : Mixture  
 Code : WW12204  
 Product name : Sodium cyanide, solution 30%

### Section 1 - Title

Short title of the exposure scenario : Sodium Cyanide\_143-33-9\_ES4\_liquid  
 List of use descriptors : **Identified use name:** Metal cleaning.  
 Metal degreaser.  
**Process Category:** PROC03, PROC15, PROC13  
**Substance supplied to that use in form of:** As such  
**Sector of end use:** SU03, SU15, SU16  
**Subsequent service life relevant for that use:** No.  
**Environmental Release Category:** ERC06b  
**Market sector by type of chemical product:** PC14  
**Article category related to subsequent service life:** Not applicable.  
 Environmental contributing scenarios : **Industrial use of reactive processing aids - ERC06b**  
 Health Contributing scenarios : **Use in closed batch process (synthesis or formulation) - PROC03**  
**Treatment of articles by dipping and pouring - PROC13**  
**Use as laboratory reagent - PROC15**

Number of the ES : 4

### Section 2 - Exposure controls

#### Contributing exposure scenario controlling environmental exposure for 0: Industrial use of reactive processing aids

Product Characteristics : liquid solution  
 Concentration of substance in mixture or article : 0.1 - 1 %  
 5 - 25 %  
 Frequency and duration of use : Exposure duration per year:200days  
 Environmental factors not influenced by risk management : Receiving surface water flow is 18000 m<sup>3</sup>/d.  
 Other operational conditions of use affecting environmental exposure : Temperature 15 - 50°C  
 Closed system and (open systems)  
 Control of pH.  
 Technical conditions and measures at process level (source) to prevent release : see part 2 of this exposure scenario. Exposure scenario worker

#### Contributing exposure scenario controlling worker exposure for 0: Use in closed batch process (synthesis or formulation)

Concentration of substance in mixture or article : Covers percentage substance in the product up to 25%.  
 Physical state : liquid  
 Frequency and duration of use : Exposure duration per day: 1 - 4 hours  
 Exposure duration per week: 5 workdays/week.  
 Other operational conditions affecting worker exposure : Indoor.  
 Closed system  
 Temperature 0 - 50°C  
 Technical conditions and measures to control dispersion from source towards the worker : Work only on solid, impervious surfaces.  
 Use isolated drainage to prevent discharge to soil.  
 Methods and materials for containment and cleaning up  
 Use extractor hood (laboratory).  
 with local exhaust ventilation  
 Organisational measures to prevent/limit releases, dispersion and exposure : Obtain special instructions before use. Do not work alone when handling cyanides.  
 Handle and open container with care. Keep locked up. Accessible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment.  
 Control of pH.

#### Conditions and measures related to personal protection, hygiene and health evaluation

**Personal protection** : Wear suitable gloves (tested to EN374), coverall and eye protection.  
Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC  
Boots.rubber

**Contributing exposure scenario controlling worker exposure for 1: Treatment of articles by dipping and pouring**

**Concentration of substance in mixture or article** : 0.1 - 1 %

**Physical state** : liquid

**Frequency and duration of use** : Exposure duration per day: 1 - 4 hours  
Exposure duration per week: 5 workdays/week.

**Other operational conditions affecting worker exposure** : Indoor.  
(open systems)  
Temperature 0 - 50 °C

**Technical conditions and measures to control dispersion from source towards the worker** : Work only on solid, impervious surfaces.  
Use isolated drainage to prevent discharge to soil.  
Methods and materials for containment and cleaning up  
Use extractor hood (laboratory).  
with local exhaust ventilation

**Organisational measures to prevent/limit releases, dispersion and exposure** : Obtain special instructions before use. Do not work alone when handling cyanides.  
Handle and open container with care. Keep locked up. Accessible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment.  
Control of pH.

**Conditions and measures related to personal protection, hygiene and health evaluation**

**Personal protection** : Wear suitable gloves (tested to EN374), coverall and eye protection.  
Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC  
Boots.rubber

**Contributing exposure scenario controlling worker exposure for 2: Use as laboratory reagent**

**Concentration of substance in mixture or article** : 0.1 - 1 %

**Physical state** : liquid

**Frequency and duration of use** : Exposure duration per day: 0.25 - 1 hours  
Exposure duration per week: 5 workdays/week.

**Other operational conditions affecting worker exposure** : Indoor.  
20 - 50 °C

**Technical conditions and measures to control dispersion from source towards the worker** : Work only on solid, impervious surfaces.  
Use isolated drainage to prevent discharge to soil.  
Methods and materials for containment and cleaning up  
Use extractor hood (laboratory).  
with local exhaust ventilation

**Organisational measures to prevent/limit releases, dispersion and exposure** : Obtain special instructions before use. Do not work alone when handling cyanides.  
Handle and open container with care. Keep locked up. Accessible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment.  
Control of pH.

**Conditions and measures related to personal protection, hygiene and health evaluation**

**Personal protection** : Wear suitable gloves (tested to EN374), coverall and eye protection.  
Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC  
Boots.rubber

**Respiratory protection** : Half-face mask (DIN EN 140) APF 1

### Section 3 - Exposure estimation and reference to its source

<b>Website:</b>	: Not applicable.
<b>Exposure estimation and reference to its source - Environment: 0: Industrial use of reactive processing aids</b>	
<b>Exposure assessment (environment):</b>	: Used EUSES model.
<b>Exposure estimation</b>	: PEC Environment, water, continuous: Fresh water 0.000157 mg/l. Risk characterisation ratio (PEC/PNEC): = 0.157 PEC Environment, water, continuous: Marine water 0.0000268 mg/l. Risk characterisation ratio (PEC/PNEC): = 0.027
<b>Exposure estimation and reference to its source - Workers: 1: Use in closed batch process (synthesis or formulation)</b>	
<b>Exposure assessment (human):</b>	: Used ECETOC TRA model.
<b>Exposure estimation</b>	: Long term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171 Long term exposure - Inhalation 0.220 mg/m <sup>3</sup> . Risk characterisation ratio = 0.306 Short term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171 Short term exposure - Inhalation 2.205 mg/m <sup>3</sup> . Risk characterisation ratio = 0.234
<b>Exposure estimation and reference to its source - Workers: 2: Treatment of articles by dipping and pouring</b>	
<b>Exposure assessment (human):</b>	: Used ECETOC TRA model.
<b>Exposure estimation</b>	: Long term exposure - Dermal 0.0342 mg/kg bw/day. Risk characterisation ratio = 0.342 Long term exposure - Inhalation 0.122 mg/m <sup>3</sup> . Risk characterisation ratio = 0.17 Short term exposure - Dermal 0.0342 mg/kg bw/day. Risk characterisation ratio = 0.342 Short term exposure - Inhalation 1.22 mg/m <sup>3</sup> . Risk characterisation ratio = 0.130
<b>Exposure estimation and reference to its source - Workers: 3: Use as laboratory reagent</b>	
<b>Exposure assessment (human):</b>	: Used ECETOC TRA model.
<b>Exposure estimation</b>	: Long term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171 Long term exposure - Inhalation 0.0204 mg/m <sup>3</sup> . Risk characterisation ratio = 0.284 Short term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171 Short term exposure - Inhalation 0.613 mg/m <sup>3</sup> . Risk characterisation ratio = 0.0652

### Section 4 - Guidance to Downstream User to evaluate if he works inside the boundaries set by the ES

<b>Environment</b>	: Not available.
<b>Health</b>	: Not available.

### Additional good practice advice beyond the REACH CSA

<b>Environment</b>	: Not available.
<b>Health</b>	: Not available.

**Annex to the extended Safety Data Sheet (eSDS)**

Industrial

**Identification of the substance or mixture**

**Product definition** : Mixture  
**Code** : WW12204  
**Product name** : Sodium cyanide, solution 30%

**Section 1 - Title**

**Short title of the exposure scenario** : Sodium Cyanide\_143-33-9\_ES5\_liquid

**List of use descriptors** : **Identified use name:** Depressants  
**Process Category:** PROC02, PROC03, PROC15  
**Substance supplied to that use in form of:** As such  
**Sector of end use:** SU02a, SU03  
**Subsequent service life relevant for that use:** No.  
**Environmental Release Category:** ERC06b  
**Market sector by type of chemical product:** PC15  
**Article category related to subsequent service life:** Not applicable.

**Environmental contributing scenarios** : **Industrial use of reactive processing aids - ERC06b**

**Health Contributing scenarios** : **Use in closed, continuous process with occasional controlled exposure - PROC02**  
**Use in closed batch process (synthesis or formulation) - PROC03**  
**Use as laboratory reagent - PROC15**

**Number of the ES** : 5

**Section 2 - Exposure controls****Contributing exposure scenario controlling environmental exposure for 0: Industrial use of reactive processing aids**

**Product Characteristics** : liquid <0.1 %  
**Frequency and duration of use** : Exposure duration per year: 360  
**Environmental factors not influenced by risk management** : Not applicable.  
**Other operational conditions of use affecting environmental exposure** : Temperature 5 - 50°C  
 Closed system and (open systems)  
 Control of pH.

**Contributing exposure scenario controlling worker exposure for 0: Use in closed, continuous process with occasional controlled exposure**

**Concentration of substance in mixture or article** : < 0.1%  
**Physical state** : liquid  
**Frequency and duration of use** : Exposure duration per day: 1 - 4 hours  
 Exposure duration per week: 5 workdays/week.  
**Other operational conditions affecting worker exposure** : Indoor.  
 Closed system  
 Temperature 0 - 50°C  
**Technical conditions and measures to control dispersion from source towards the worker** : Work only on solid, impervious surfaces.  
 Use isolated drainage to prevent discharge to soil.  
 Methods and materials for containment and cleaning up  
 Use extractor hood (laboratory).  
 with local exhaust ventilation  
**Organisational measures to prevent/limit releases, dispersion and exposure** : Obtain special instructions before use. Do not work alone when handling cyanides.  
 Handle and open container with care. Keep locked up. Accessible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment.  
 Control of pH.  
**Conditions and measures related to personal protection, hygiene and health evaluation**  
**Personal protection** : Wear suitable gloves (tested to EN374), coverall and eye protection.  
 Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC  
 Boots.rubber  
**Respiratory protection** : No personal respiratory protective equipment normally required.

**Contributing exposure scenario controlling worker exposure for 1: Use in closed batch process (synthesis or formulation)**

<b>Concentration of substance in mixture or article</b>	: 5 - 25 %
<b>Physical state</b>	: liquid
<b>Frequency and duration of use</b>	: Exposure duration per day: 1 - 4 hours Exposure duration per week: 5 workdays/week.
<b>Other operational conditions affecting worker exposure</b>	: Indoor. Closed system Temperature 0 -50°C
<b>Technical conditions and measures to control dispersion from source towards the worker</b>	: Work only on solid, impervious surfaces. Use isolated drainage to prevent discharge to soil. Methods and materials for containment and cleaning up Use extractor hood (laboratory). with local exhaust ventilation
<b>Organisational measures to prevent/limit releases, dispersion and exposure</b>	: Obtain special instructions before use. Do not work alone when handling cyanides. Handle and open container with care. Keep locked up. Accesible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment. Control of pH.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
<b>Personal protection</b>	: Wear suitable gloves (tested to EN374), coverall and eye protection. Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC Boots.rubber
<b>Respiratory protection</b>	: No personal respiratory protective equipment normally required.

**Contributing exposure scenario controlling worker exposure for 2: Use as laboratory reagent**

<b>Concentration of substance in mixture or article</b>	: <0.1%
<b>Physical state</b>	: liquid
<b>Frequency and duration of use</b>	: Exposure duration per day: 0.25 - 1 hours Exposure duration per week: 5 workdays/week.
<b>Other operational conditions affecting worker exposure</b>	: 20 - 50°C Indoor.
<b>Technical conditions and measures to control dispersion from source towards the worker</b>	: Work only on solid, impervious surfaces. Use isolated drainage to prevent discharge to soil. Methods and materials for containment and cleaning up Use extractor hood (laboratory). with local exhaust ventilation
<b>Organisational measures to prevent/limit releases, dispersion and exposure</b>	: Obtain special instructions before use. Do not work alone when handling cyanides. Handle and open container with care. Keep locked up. Accesible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment. Control of pH.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
<b>Personal protection</b>	: Wear suitable gloves (tested to EN374), coverall and eye protection. Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC Boots.rubber
<b>Respiratory protection</b>	: No personal respiratory protective equipment normally required.

**Section 3 - Exposure estimation and reference to its source**

<b>Website:</b>	: Not applicable.
<b>Exposure estimation and reference to its source - Environment: 0: Industrial use of reactive processing aids</b>	
<b>Exposure assessment (environment):</b>	: Not available.
<b>Exposure estimation</b>	: Not available.
<b>Exposure estimation and reference to its source - Workers: 1: Use in closed, continuous process with occasional controlled exposure</b>	
<b>Exposure assessment (human):</b>	: Used ECETOC TRA model.
<b>Date of issue/Date of revision</b>	: 30 November 2010
<b>Page: 23/34</b>	

**Exposure estimation** : Long term exposure - Dermal 0.00685 mg/kg bw/day. Risk characterisation ratio = 0.0685  
 Long term exposure - Inhalation 0.0122 mg/m<sup>3</sup>. Risk characterisation ratio = 0.0170  
 Short term exposure - Dermal 0.00685 mg/kg bw/day. Risk characterisation ratio = 0.0685  
 Short term exposure - Inhalation 0.122 mg/m<sup>3</sup>. Risk characterisation ratio = 0.013

**Exposure estimation and reference to its source - Workers: 2: Use in closed batch process (synthesis or formulation)**

**Exposure assessment (human):** : Used ECETOC TRA model.

**Exposure estimation** : Long term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171  
 Long term exposure - Inhalation 0.220 mg/m<sup>3</sup>. Risk characterisation ratio = 0.306  
 Short term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171  
 Short term exposure - Inhalation 2.205 mg/m<sup>3</sup>. Risk characterisation ratio = 0.234

**Exposure estimation and reference to its source - Workers: 3: Use as laboratory reagent**

**Exposure assessment (human):** : Used ECETOC TRA model.

**Exposure estimation** : Long term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171  
 Long term exposure - Inhalation 0.0204 mg/m<sup>3</sup>. Risk characterisation ratio = 0.0283  
 Short term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171  
 Short term exposure - Inhalation 0.612 mg/m<sup>3</sup>. Risk characterisation ratio = 0.0651

**Section 4 - Guidance to Downstream User to evaluate if he works inside the boundaries set by the ES**

**Environment** : Not available.

**Health** : Not available.

**Additional good practice advice beyond the REACH CSA**

**Environment** : Not available.

**Health** : Not available.

## Annex to the extended Safety Data Sheet (eSDS)

Industrial

### Identification of the substance or mixture

Product definition : Mixture  
 Code : WW12204  
 Product name : Sodium cyanide, solution 30%

### Section 1 - Title

Short title of the exposure scenario : Sodium Cyanide\_143-33-9\_ES6\_liquid

List of use descriptors : **Identified use name:** Extraction agents  
**Process Category:** PROC03, PROC15, PROC04  
**Substance supplied to that use in form of:** As such  
**Sector of end use:** SU02a, SU03  
**Subsequent service life relevant for that use:** No.  
**Environmental Release Category:** ERC06b  
**Market sector by type of chemical product:** PC40  
**Article category related to subsequent service life:** Not applicable.

Environmental contributing scenarios : **Industrial use of reactive processing aids - ERC06b**

Health Contributing scenarios : **Use in closed batch process (synthesis or formulation) - PROC03**  
**Use in batch and other process (synthesis) where opportunity for exposure arises - PROC04**  
**Use as laboratory reagent - PROC15**

Number of the ES : 6

### Section 2 - Exposure controls

#### Contributing exposure scenario controlling environmental exposure for 0: Industrial use of reactive processing aids

#### Contributing exposure scenario controlling worker exposure for 0: Use in closed batch process (synthesis or formulation)

Concentration of substance in mixture or article : <1 - 25 %

Physical state : liquid

Frequency and duration of use : Exposure duration per day: 1 - 4 hours  
 Exposure duration per week: 5 workdays/week.

Other operational conditions affecting worker exposure : Indoor.  
 Closed system  
 Temperature 5 - 80 °C

Technical conditions and measures to control dispersion from source towards the worker : Work only on solid, impervious surfaces.  
 Use isolated drainage to prevent discharge to soil.  
 Methods and materials for containment and cleaning up  
 Use extractor hood (laboratory).  
 with local exhaust ventilation

Organisational measures to prevent/limit releases, dispersion and exposure : Obtain special instructions before use. Do not work alone when handling cyanides.  
 Handle and open container with care. Keep locked up. Accessible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment.  
 Control of pH.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Personal protection : Wear suitable gloves (tested to EN374), coverall and eye protection.  
 Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC  
 Boots.rubber

Respiratory protection : No personal respiratory protective equipment normally required.

#### Contributing exposure scenario controlling worker exposure for 1: Use in batch and other process (synthesis) where opportunity for exposure arises

Concentration of substance in mixture or article : Limit the substance in product to 5000 ppm

Physical state : liquid

Frequency and duration of use : Exposure duration per day:  
 Leaching 1 - 4 hours  
 Cleaning work -Maintenance and service > 4 h (half shift).

<b>Other operational conditions affecting worker exposure</b>	: Indoor/Outdoor use. (open systems) Temperature 5 - 50 °C
<b>Technical conditions and measures to control dispersion from source towards the worker</b>	: Work only on solid, impervious surfaces. Use isolated drainage to prevent discharge to soil. Methods and materials for containment and cleaning up Use extractor hood (laboratory). without local exhaust ventilation
<b>Organisational measures to prevent/limit releases, dispersion and exposure</b>	: Obtain special instructions before use. Do not work alone when handling cyanides. Handle and open container with care. Keep locked up. Accesible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment. Control of pH.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
<b>Personal protection</b>	: Wear suitable gloves (tested to EN374), coverall and eye protection. Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC Boots.rubber
<b>Respiratory protection</b>	: No personal respiratory protective equipment normally required.

<b>Contributing exposure scenario controlling worker exposure for 2: Use as laboratory reagent</b>	
<b>Concentration of substance in mixture or article</b>	: <% 1
<b>Physical state</b>	: liquid
<b>Frequency and duration of use</b>	: Exposure duration per day: 0.25 - 1 hours Exposure duration per week: 5 workdays/week.
<b>Other operational conditions affecting worker exposure</b>	: 20 - 50°C Indoor.
<b>Technical conditions and measures to control dispersion from source towards the worker</b>	: Work only on solid, impervious surfaces. Use isolated drainage to prevent discharge to soil. Methods and materials for containment and cleaning up Use extractor hood (laboratory). with local exhaust ventilation
<b>Organisational measures to prevent/limit releases, dispersion and exposure</b>	: Obtain special instructions before use. Do not work alone when handling cyanides. Handle and open container with care. Keep locked up. Accesible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment. Control of pH.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
<b>Personal protection</b>	: Wear suitable gloves (tested to EN374), coverall and eye protection. Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC Boots.rubber
<b>Respiratory protection</b>	: No personal respiratory protective equipment normally required.

### Section 3 - Exposure estimation and reference to its source

<b>Website:</b>	: Not applicable.
<b>Exposure estimation and reference to its source - Environment: 0: Industrial use of reactive processing aids</b>	
<b>Exposure assessment (environment):</b>	: Not available.
<b>Exposure estimation</b>	: Not available.
<b>Exposure estimation and reference to its source - Workers: 1: Use in closed batch process (synthesis or formulation)</b>	
<b>Exposure assessment (human):</b>	: Used ECETOC TRA model.
<b>Exposure estimation</b>	: Long term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171 Long term exposure - Inhalation 0.220 mg/m³. Risk characterisation ratio = 0.306 Short term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171 Short term exposure - Inhalation 2.205 mg/m³. Risk characterisation ratio = 0.234

**Exposure estimation and reference to its source - Workers: 2: Use in batch and other process (synthesis) where opportunity for exposure arises**

**Exposure assessment (human):** : Used ECETOC TRA model.

**Exposure estimation** : Long term exposure - Dermal 0.0342 mg/kg bw/day. Risk characterisation ratio = 0.342  
Long term exposure - Inhalation 0.102 mg/m<sup>3</sup>. Risk characterisation ratio = 0.141  
Short term exposure - Dermal 0.0342 mg/kg bw/day. Risk characterisation ratio = 0.342  
Short term exposure - Inhalation 0.612 mg/m<sup>3</sup>. Risk characterisation ratio = 0.0651

**Exposure estimation and reference to its source - Workers: 3: Use as laboratory reagent**

**Exposure assessment (human):** : Used ECETOC TRA model.

**Exposure estimation** : Long term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171  
Long term exposure - Inhalation 0.0204 mg/m<sup>3</sup>. Risk characterisation ratio = 0.0283  
Short term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171  
Short term exposure - Inhalation 0.612 mg/m<sup>3</sup>. Risk characterisation ratio = 0.0651

**Section 4 - Guidance to Downstream User to evaluate if he works inside the boundaries set by the ES**

**Environment** : Not available.

**Health** : Not available.

**Additional good practice advice beyond the REACH CSA**

**Environment** : Not available.

**Health** : Not available.

## Annex to the extended Safety Data Sheet (eSDS)

Industrial

### Identification of the substance or mixture

Product definition : Mixture  
 Code : WW12204  
 Product name : Sodium cyanide, solution 30%

### Section 1 - Title

Short title of the exposure scenario : Sodium Cyanide\_143-33-9\_ES7\_liquid

List of use descriptors : **Identified use name:** Recycling metal  
**Process Category:** PROC01, PROC03, PROC09, PROC15  
**Substance supplied to that use in form of:** As such  
**Sector of end use:** SU03, SU14  
**Subsequent service life relevant for that use:** No.  
**Environmental Release Category:** ERC06b  
**Market sector by type of chemical product:** PC40  
**Article category related to subsequent service life:** Not applicable.

Environmental contributing scenarios : **Industrial use of reactive processing aids - ERC06b**

Health Contributing scenarios : **Use in closed process, no likelihood of exposure - PROC01**  
**Use in closed batch process (synthesis or formulation) - PROC03**  
**Transfer of substance or preparation into small containers (dedicated filling line, including weighing) - PROC09**  
**Use as laboratory reagent - PROC15**

Number of the ES : 7

### Section 2 - Exposure controls

#### Contributing exposure scenario controlling environmental exposure for 0: Industrial use of reactive processing aids

Product Characteristics : liquid

Frequency and duration of use : Exposure duration per year:300

Environmental factors not influenced by risk management : Receiving surface water flow is 18000 m<sup>3</sup>/d.

Other operational conditions of use affecting environmental exposure : Temperature°C 0 - 90  
 Closed system  
 Control of pH.

Technical conditions and measures at process level (source) to prevent release : see part 2 of this exposure scenario. Exposure scenario worker

#### Contributing exposure scenario controlling worker exposure for 0: Use in closed process, no likelihood of exposure

Concentration of substance in mixture or article : 1- 5 %

Physical state : liquid

Frequency and duration of use : Exposure duration per day: > 4 h (half shift),hours  
 Exposure duration per week: 5 workdays/week.

Other operational conditions affecting worker exposure : Indoor.  
 Closed system  
 Temperature 0 - 50 °C

Technical conditions and measures to control dispersion from source towards the worker : Work only on solid, impervious surfaces.  
 Use isolated drainage to prevent discharge to soil.  
 Methods and materials for containment and cleaning up  
 Use extractor hood (laboratory).  
 with local exhaust ventilation

Organisational measures to prevent/limit releases, dispersion and exposure : Obtain special instructions before use. Do not work alone when handling cyanides.  
 Handle and open container with care. Keep locked up. Accessible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place.  
 Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment.  
 Control of pH.

Conditions and measures related to personal protection, hygiene and health evaluation

**Personal protection** : Wear suitable gloves (tested to EN374), coverall and eye protection.  
Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC  
Boots.rubber

**Contributing exposure scenario controlling worker exposure for 1: Use in closed batch process (synthesis or formulation)**

**Concentration of substance in mixture or article** : 1- 5 %

**Physical state** : liquid

**Frequency and duration of use** : Exposure duration per day: > 4 h (half shift).hours  
Exposure duration per week: 5 workdays/week.

**Other operational conditions affecting worker exposure** : Indoor.  
Closed system  
Temperature 0 - 50 °C

**Technical conditions and measures to control dispersion from source towards the worker** : Work only on solid, impervious surfaces.  
Use isolated drainage to prevent discharge to soil.  
Methods and materials for containment and cleaning up  
Use extractor hood (laboratory).  
with local exhaust ventilation

**Organisational measures to prevent/limit releases, dispersion and exposure** : Obtain special instructions before use. Do not work alone when handling cyanides.  
Handle and open container with care. Keep locked up. Accesible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment.  
Control of pH.

**Conditions and measures related to personal protection, hygiene and health evaluation**

**Personal protection** : Wear suitable gloves (tested to EN374), coverall and eye protection.  
Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC  
Boots.rubber

**Contributing exposure scenario controlling worker exposure for 2: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)**

**Concentration of substance in mixture or article** : 1- 5 %

**Physical state** : liquid

**Frequency and duration of use** : Exposure duration per day: > 1 - 4 hours  
Exposure duration per week: 5 workdays/week.

**Other operational conditions affecting worker exposure** : Indoor.  
Closed system  
Temperature 0 - 50 °C

**Technical conditions and measures to control dispersion from source towards the worker** : Work only on solid, impervious surfaces.  
Use isolated drainage to prevent discharge to soil.  
Methods and materials for containment and cleaning up  
Use extractor hood (laboratory).  
with local exhaust ventilation

**Organisational measures to prevent/limit releases, dispersion and exposure** : Obtain special instructions before use. Do not work alone when handling cyanides.  
Handle and open container with care. Keep locked up. Accesible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment.  
Control of pH.

**Conditions and measures related to personal protection, hygiene and health evaluation**

**Personal protection** : Wear suitable gloves (tested to EN374), coverall and eye protection.  
Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC  
Boots.rubber

**Contributing exposure scenario controlling worker exposure for 3: Use as laboratory reagent**

<b>Concentration of substance in mixture or article</b>	: 1- 5 %
<b>Physical state</b>	: liquid
<b>Frequency and duration of use</b>	: Exposure duration per day: 0.25 - 1 hours Exposure duration per week: 5 workdays/week.
<b>Other operational conditions affecting worker exposure</b>	: 20 - 50 °C Indoor.
<b>Technical conditions and measures to control dispersion from source towards the worker</b>	: Work only on solid, impervious surfaces. Use isolated drainage to prevent discharge to soil. Methods and materials for containment and cleaning up Use extractor hood (laboratory). with local exhaust ventilation
<b>Organisational measures to prevent/limit releases, dispersion and exposure</b>	: Obtain special instructions before use. Do not work alone when handling cyanides. Handle and open container with care. Keep locked up. Accesible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment. Control of pH.
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
<b>Personal protection</b>	: Wear suitable gloves (tested to EN374), coverall and eye protection. Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC Boots.rubber

**Section 3 - Exposure estimation and reference to its source**

**Website:** : Not applicable.

**Exposure estimation and reference to its source - Environment: 0: Industrial use of reactive processing aids**

<b>Exposure assessment (environment):</b>	: Used EUSES model.
<b>Exposure estimation</b>	: PEC Environment, water, continuous: Fresh water 0.000113 mg/l. Risk characterisation ratio (PEC/PNEC): = 0.113 PEC Environment, water, continuous: Marine water 0.0000133 mg/l. Risk characterisation ratio (PEC/PNEC): = 0.0133

**Exposure estimation and reference to its source - Workers: 1: Use in closed process, no likelihood of exposure**

<b>Exposure assessment (human):</b>	: Used ECETOC TRA model.
<b>Exposure estimation</b>	: Long term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171 Long term exposure - Inhalation 0.00408 mg/m <sup>3</sup> . Risk characterisation ratio = 0.00567 Short term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171 Short term exposure - Inhalation 0.0245 mg/m <sup>3</sup> . Risk characterisation ratio = 0.0026

**Exposure estimation and reference to its source - Workers: 2: Use in closed batch process (synthesis or formulation)**

<b>Exposure assessment (human):</b>	: Used ECETOC TRA model.
<b>Exposure estimation</b>	: Long term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171 Long term exposure - Inhalation 0.122 mg/m <sup>3</sup> . Risk characterisation ratio = 0.170 Short term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171 Short term exposure - Inhalation 0.735 mg/m <sup>3</sup> . Risk characterisation ratio = 0.0782

**Exposure estimation and reference to its source - Workers: 3: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)**

<b>Exposure assessment (human):</b>	: Used ECETOC TRA model.
<b>Exposure estimation</b>	: Long term exposure - Dermal 0.0342 mg/kg bw/day. Risk characterisation ratio = 0.342 Long term exposure - Inhalation 0.122 mg/m <sup>3</sup> . Risk characterisation ratio = 0.170 Short term exposure - Dermal 0.0342 mg/kg bw/day. Risk characterisation ratio = 0.342 Short term exposure - Inhalation 1.225 mg/m <sup>3</sup> . Risk characterisation ratio = 0.13

**Exposure estimation and reference to its source - Workers: 4: Use as laboratory reagent**

**Exposure assessment (human):** : Used ECETOC TRA model.

**Exposure estimation** : Long term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171  
Long term exposure - Inhalation 0.0408 mg/m<sup>3</sup>. Risk characterisation ratio = 0.0567  
Short term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171  
Short term exposure - Inhalation 1.225 mg/m<sup>3</sup>. Risk characterisation ratio = 0.130

**Section 4 - Guidance to Downstream User to evaluate if he works inside the boundaries set by the ES**

**Environment** : Not available.

**Health** : Not available.

**Additional good practice advice beyond the REACH CSA**

**Environment** : Not available.

**Health** : Not available.

## Annex to the extended Safety Data Sheet (eSDS)

Industrial

### Identification of the substance or mixture

Product definition : Mixture  
 Code : WW12204  
 Product name : Sodium cyanide, solution 30%

### Section 1 - Title

Short title of the exposure scenario : Sodium Cyanide\_143-33-9\_ES8\_liquid

List of use descriptors : **Identified use name:** Electroplating.  
**Process Category:** PROC03, PROC13, PROC15  
**Substance supplied to that use in form of:** As such  
**Sector of end use:** SU03, SU15, SU16, SU17  
**Subsequent service life relevant for that use:** No.  
**Environmental Release Category:** ERC06b  
**Market sector by type of chemical product:** PC14, PC15  
**Article category related to subsequent service life:** Not applicable.

Environmental contributing scenarios : **Industrial use of reactive processing aids - ERC06b**

Health Contributing scenarios : **Use in closed batch process (synthesis or formulation) - PROC03**  
**Treatment of articles by dipping and pouring - PROC13**  
**Use as laboratory reagent - PROC15**

Number of the ES : 8

### Section 2 - Exposure controls

#### Contributing exposure scenario controlling environmental exposure for 0: Industrial use of reactive processing aids

Product Characteristics : liquid solution

Concentration of substance in mixture or article : 0.1 - 1 %  
 5 - 25 %

Frequency and duration of use : Exposure duration per year: 300 days

Environmental factors not influenced by risk management : Receiving surface water flow is 18000 m<sup>3</sup>/d.

Other operational conditions of use affecting environmental exposure : Temperature 5 - 50°C  
 Closed system and (open systems)  
 Control of pH.

Technical conditions and measures at process level (source) to prevent release : see part 2 of this exposure scenario. Exposure scenario worker

#### Contributing exposure scenario controlling worker exposure for 0: Use in closed batch process (synthesis or formulation)

Concentration of substance in mixture or article : Covers percentage substance in the product up to 25%.  
 5 - 25 %

Physical state : liquid

Frequency and duration of use : Exposure duration per day: 1 - 4 hours  
 Exposure duration per week: 5 workdays/week.

Other operational conditions affecting worker exposure : Indoor.  
 Closed system  
 Temperature 0 - 50°C

Technical conditions and measures to control dispersion from source towards the worker : Work only on solid, impervious surfaces.  
 Use isolated drainage to prevent discharge to soil.  
 Methods and materials for containment and cleaning up  
 Use extractor hood (laboratory).  
 with local exhaust ventilation

Organisational measures to prevent/limit releases, dispersion and exposure : Obtain special instructions before use. Do not work alone when handling cyanides.  
 Handle and open container with care. Keep locked up. Accessible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment.  
 Control of pH.

#### Conditions and measures related to personal protection, hygiene and health evaluation

**Personal protection** : Wear suitable gloves (tested to EN374), coverall and eye protection.  
Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC  
Boots.rubber

**Contributing exposure scenario controlling worker exposure for 1: Treatment of articles by dipping and pouring**

**Concentration of substance in mixture or article** : 0.1 - 5 %

**Physical state** : liquid

**Frequency and duration of use** : Exposure duration per day: 1 - 4 hours  
Exposure duration per week: 5 workdays/week.

**Other operational conditions affecting worker exposure** : Indoor.  
(open systems)  
Temperature 0 - 50 °C

**Technical conditions and measures to control dispersion from source towards the worker** : Work only on solid, impervious surfaces.  
Use isolated drainage to prevent discharge to soil.  
Methods and materials for containment and cleaning up  
Use extractor hood (laboratory).  
with local exhaust ventilation

**Organisational measures to prevent/limit releases, dispersion and exposure** : Obtain special instructions before use. Do not work alone when handling cyanides.  
Handle and open container with care. Keep locked up. Accessible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment.  
Control of pH.

**Conditions and measures related to personal protection, hygiene and health evaluation**

**Personal protection** : Wear suitable gloves (tested to EN374), coverall and eye protection.  
Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC  
Boots.rubber

**Contributing exposure scenario controlling worker exposure for 2: Use as laboratory reagent**

**Concentration of substance in mixture or article** : 0.1 - 5 %

**Physical state** : liquid

**Frequency and duration of use** : Exposure duration per day: 0.25 - 1 hours  
Exposure duration per week: 5 workdays/week.

**Other operational conditions affecting worker exposure** : Indoor.  
20 - 50 °C

**Technical conditions and measures to control dispersion from source towards the worker** : Work only on solid, impervious surfaces.  
Use isolated drainage to prevent discharge to soil.  
Methods and materials for containment and cleaning up  
Use extractor hood (laboratory).  
with local exhaust ventilation

**Organisational measures to prevent/limit releases, dispersion and exposure** : Obtain special instructions before use. Do not work alone when handling cyanides.  
Handle and open container with care. Keep locked up. Accessible only for authorised persons. Store in a segregated and approved area. Store in a well-ventilated place. Keep container tightly closed. Separate from oxidisers, acids, bases etc. in storage and transport. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point. Avoid release to the environment.  
Control of pH.

**Conditions and measures related to personal protection, hygiene and health evaluation**

**Personal protection** : Wear suitable gloves (tested to EN374), coverall and eye protection.  
Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. butyl rubber - nitrile rubber - PVC  
Boots.rubber

**Section 3 - Exposure estimation and reference to its source**

**Website:** : Not applicable.

**Exposure estimation and reference to its source - Environment: 0: Industrial use of reactive processing aids**

**Exposure assessment (environment):** : Used EUSES model.

**Exposure estimation** : PEC Environment, water, continuous: Fresh water 0.000173 mg/l. Risk characterisation ratio (PEC/PNEC): = 0.173  
 PEC Environment, water, continuous: Marine water 0.000032 mg/l. Risk characterisation ratio (PEC/PNEC): = 0.032

**Exposure estimation and reference to its source - Workers: 1: Use in closed batch process (synthesis or formulation)**

**Exposure assessment (human):** : Used ECETOC TRA model.

**Exposure estimation** : Long term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171  
 Long term exposure - Inhalation 0.220 mg/m<sup>3</sup>. Risk characterisation ratio = 0.306  
 Short term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171  
 Short term exposure - Inhalation 2.205 mg/m<sup>3</sup>. Risk characterisation ratio = 0.234

**Exposure estimation and reference to its source - Workers: 2: Treatment of articles by dipping and pouring**

**Exposure assessment (human):** : Used ECETOC TRA model.

**Exposure estimation** : Long term exposure - Dermal 0.0342 mg/kg bw/day. Risk characterisation ratio = 0.342  
 Long term exposure - Inhalation 0.245 mg/m<sup>3</sup>. Risk characterisation ratio = 0.340  
 Short term exposure - Dermal 0.0342 mg/kg bw/day. Risk characterisation ratio = 0.342  
 Short term exposure - Inhalation 2.450 mg/m<sup>3</sup>. Risk characterisation ratio = 0.26

**Exposure estimation and reference to its source - Workers: 3: Use as laboratory reagent**

**Exposure assessment (human):** : Used ECETOC TRA model.

**Exposure estimation** : Long term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171  
 Long term exposure - Inhalation 0.0408 mg/m<sup>3</sup>. Risk characterisation ratio = 0.0567  
 Short term exposure - Dermal 0.00171 mg/kg bw/day. Risk characterisation ratio = 0.0171  
 Short term exposure - Inhalation 1.225 mg/m<sup>3</sup>. Risk characterisation ratio = 0.130

**Section 4 - Guidance to Downstream User to evaluate if he works inside the boundaries set by the ES**

**Environment** : Not available.

**Health** : Not available.

**Additional good practice advice beyond the REACH CSA**

**Environment** : Not available.

**Health** : Not available.