

Creation Date 12-Aug-2014 Revision Date 08-Dec-2016 **Revision Number** 13

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE **COMPANY/UNDERTAKING**

1.1. Product identification

Product Description: Ammonium dichromate

208810000; 208810025; 208811000; 208815000 Cat No.: **Synonyms** Ammonium dichromate(VI).; Ammonium bichromate

CAS-No 7789-09-5 232-143-1 EC-No. H8 Cr2 N2 O7 Molecular Formula

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

Recommended Use Laboratory chemicals. Uses advised against No Information available

1.3. Details of the supplier of the safety data sheet

Acros Organics BVBA Company

Janssen Pharmaceuticalaan 3a

2440 Geel, Belgium

begel.sdsdesk@thermofisher.com E-mail address

1.4. Emergency telephone number

For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11 Emergency Number US:001-201-796-7100 / Europe: +32 14 57 52 99 CHEMTREC Tel. No.US:001-800-424-9300 / Europe:001-703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Oxidizing solids Category 2 (H272)

Health hazards

Acute oral toxicity Category 3 (H301) Acute dermal toxicity Category 4 (H312) Acute Inhalation Toxicity - Dusts and Mists Category 2 (H330) Category 1 B (H314) Skin Corrosion/irritation Serious Eye Damage/Eye Irritation Category 1 (H318) Respiratory Sensitization Category 1 (H334) Category 1 (H317) Category 1B (H340) Skin Sensitization Germ Cell Mutagenicity Carcinogenicity Category 1B (H350) Reproductive Toxicity Category 1B (H360FD) Category 1 (H372)

Specific target organ toxicity - (repeated exposure)

Environmental hazards

Ammonium dichromate

Acute aquatic toxicity	Category 1 (H400)
Chronic aquatic toxicity	Category 1 (H410)

2.2. Label elements



Signal Word

Danger

Hazard Statements

H272 - May intensify fire; oxidizer

H301 - Toxic if swallowed

H312 - Harmful in contact with skin

H330 - Fatal if inhaled

H314 - Causes severe skin burns and eye damage

H317 - May cause an allergic skin reaction

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

H340 - May cause genetic defects

H350 - May cause cancer

H360FD - May damage fertility. May damage the unborn child

H372 - Causes damage to organs through prolonged or repeated exposure

H410 - Very toxic to aquatic life with long lasting effects

Precautionary Statements

P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician

Additional EU labelling

Restricted to professional users

2.3. Other hazards

No information available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Ammonium bichromate	7789-09-5	EEC No. 232-143-1	>95	Ox. Sol. 2 (H272)
				Acute Tox. 3 (H301)
				Acute Tox. 4 (H312)
				Acute Tox. 2 (H330)
				Skin Corr. 1B (H314)
				Skin Sens. 1 (H317)
				Resp. Sens. 1 (H334)
				Muta. 1B (H340)
				Carc. 1B (H350)

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		Repr. 1B (H360FD)
		STOT RE 1 (H372)
		Aquatic Acute 1 (H400)
		Aquatic Chronic 1 (H410)
		, , ,

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Immediate medical attention is required.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated

clothes and shoes. Immediate medical attention is required.

Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately.

Inhalation Move to fresh air. Do not use mouth-to-mouth method if victim ingested or inhaled the

substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required. If

not breathing, give artificial respiration.

Protection of First-aiders Ensure that medical personnel are aware of the material(s) involved, take precautions to

protect themselves and prevent spread of contamination.

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

Breathing difficulties. Causes burns by all exposure routes. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic skin reaction. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

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

Notes to Physician Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

Water.

Extinguishing media which must not be used for safety reasons

Carbon dioxide (CO2). Dry chemical. alcohol foam.

5.2. Special hazards arising from the substance or mixture

Oxidizer: Contact with combustible/organic material may cause fire. Risk of explosion if heated under confinement. Dust can form an explosive mixture in air. Very toxic. Corrosive Material. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition. Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous Combustion Products

Nitrogen oxides (NOx), Highly toxic fumes, Chromium oxide.

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5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Wear self-contained breathing apparatus and protective suit. Evacuate personnel to safe areas. Ensure adequate ventilation. Avoid dust formation. Remove all sources of ignition. Do not get in eyes, on skin, or on clothing.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. Should not be released into the environment.

6.3. Methods and material for containment and cleaning up

Wear self-contained breathing apparatus and protective suit. Keep combustibles (wood, paper, oil, etc) away from spilled material. Remove all sources of ignition. Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Use only under a chemical fume hood. Wear personal protective equipment. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Do not breathe dust. Do not ingest. Keep away from clothing and other combustible materials. Keep away from open flames, hot surfaces and sources of ignition. Use spark-proof tools and explosion-proof equipment.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of workday.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Do not store near combustible materials. Containers should be vented periodically in order to overcome pressure buildup. Corrosives area.

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s): **UK** - EH40/2005 Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement.

Component	European Union	The United Kingdom	France	Belgium	Spain
Ammonium		STEL: 0.15 mg/m ³ 15	TWA / VME: 0.001		TWA / VLA-ED: 0.05
bichromate		min	mg/m³ (8 heures).		mg/m³ (8 horas)

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Resp. Sens. STEL / VLCT: 0.005	TWA: 0.05 mg/m ³ 8 hr	restrictive limit	
ma/m³ restrictive limit	Resp. Sens.	STEL / VLCT: 0.005	
Ing/in Testrictive infinit		mg/m ³ . restrictive limit	

Component	Italy	Germany	Portugal	The Netherlands	Finland
Ammonium		Haut	TWA: 0.5 mg/m ³ 8 horas		TWA: 0.005 mg/m ³ 8
bichromate			TWA: 0.05 mg/m ³ 8		tunteina
			horas		

Component	Austria	Denmark	Switzerland	Poland	Norway
Ammonium	Haut		Haut/Peau		TWA: 0.005 mg/m ³ 8
bichromate			TWA: 0.005 mg/m ³ 8		timer
			Stunden		

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

MDHS12/2 Chromium and inorganic compounds of chromium in air Laboratory method using flame atomic absorption spectrometry

Derived No Effect Level (DNEL) No information available

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Route of exposure	Acute effects (local)	Acute effects	Chronic effects	Chronic effects
		(systemic)	(local)	(systemic)
Oral				
Dermal				
Inhalation				

Predicted No Effect Concentration No information available. (PNEC)

8.2. Exposure controls

Engineering Measures

Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

Natural rubber Se	reakthrough time ee manufacturers ecommendations	Glove thickness -	EU standard EN 374	Glove comments (minimum requirement)
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Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

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Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Respiratory Protection When workers are facing concentrations above the exposure limit they must use

appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used

and maintained properly

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits

are exceeded or if irritation or other symptoms are experienced

Recommended Filter type: Particulates filter conforming to EN 143

Small scale/Laboratory use Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure

limits are exceeded or if irritation or other symptoms are experienced.

Recommended half mask:- Particle filtering: EN149:2001 When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls Prevent product from entering drains. Do not allow material to contaminate ground water

system. Local authorities should be advised if significant spillages cannot be contained.

10% aq. sol

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

AppearanceOrangePhysical StateSolid

Odor Odorless

Odor Threshold No data available

pH 3-4 Melting Point/Range 170 °C / 338 °F

Melting Point/Range 170 °C / 338 °I Softening Point No data available

Boiling Point/Range No information available

Flash Point No information available Method - No information available

Evaporation Rate Not applicable Solid

Flammability (solid,gas) No information available

Explosion Limits No data available

Vapor Pressure No data available

Vapor Density Not applicable Solid

Specific Gravity / Density 2.1500

Bulk DensityNo data availableWater Solubility360 g/l (20°C)

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Autoignition Temperature 218 °C / 424.4 °F

Decomposition Temperature 170 °C

Viscosity Not applicable Solid

Explosive Properties No information available

Oxidizing Properties Oxidizer

9.2. Other information

Molecular Formula H8 Cr2 N2 O7 Molecular Weight 252.07

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Yes

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10.2. Chemical stability

Oxidizer: Contact with combustible/organic material may cause fire, Risk of explosion by

shock, friction, fire or other sources of ignition, Risk of explosion if heated under

confinement.

10.3. Possibility of hazardous reactions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions No information available.

10.4. Conditions to avoid

Avoid shock and friction. Excess heat. Incompatible products. Combustible material. Avoid

dust formation.

10.5. Incompatible materials

Acids. Bases. Alcohols. Reducing agents.

10.6. Hazardous decomposition products

Nitrogen oxides (NOx). Highly toxic fumes. Chromium oxide.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Product Information

(a) acute toxicity;

OralCategory 3DermalCategory 4InhalationCategory 2

Component LD50 Oral		LD50 Dermal	LC50 Inhalation
Ammonium bichromate	LD50 = 48 mg/kg (Rat)	LD50 = 1860 mg/kg(Rabbit)	LC50 = 0.2 mg/L (Rat)4 h

(b) skin corrosion/irritation; Category 1 B

Risk of serious damage to eyes

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory Category 1 Skin Category 1

May cause sensitization by inhalation and skin contact

(e) germ cell mutagenicity; Category 1B

Mutagenic; May cause heritable genetic damage

(f) carcinogenicity; Category 1B

The table below indicates whether each agency has listed any ingredient as a carcinogen

The table below indicates whether each agency has noted any ingredient as a sareinegen							
Component	EU	UK	Germany	IARC			
Ammonium bichromate	Carc Cat. 1B			Group 1			

(g) reproductive toxicity; Category 1B
Reproductive Effects May impair fertility.

Developmental Effects May cause harm to the unborn child.

Teratogenicity Teratogenic effects have occurred in experimental animals.

(h) STOT-single exposure; No data available

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(i) STOT-repeated exposure; Category 1

No information available. **Target Organs**

(j) aspiration hazard; Not applicable

Solid

delayed

Symptoms / effects, both acute and Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic

environment. The product contains following substances which are hazardous for the environment. Do not allow material to contaminate ground water system.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Ammonium bichromate	LC50: = 136 mg/L, 96h (Gambusia affinis)			

12.2. Persistence and degradability The product includes heavy metals. Prevent release into the environment. Special

pretreatment required

Persistence May persist, based on information available. Degradability Not relevant for inorganic substances.

Degradation in sewage treatment plant

Contains substances known to be hazardous to the environment or not degradable in waste

water treatment plants.

12.3. Bioaccumulative potential

May have some potential to bioaccumulate

12.4. Mobility in soil

The product is water soluble, and may spread in water systems Will likely be mobile in the

environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB

assessment

No data available for assessment.

12.6. Other adverse effects

Endocrine Disruptor Information Persistent Organic Pollutant Ozone Depletion Potential

This product does not contain any known or suspected endocrine disruptors

This product does not contain any known or suspected substance This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues / Unused

Products

Should not be released into the environment. Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in

accordance with local regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point.

European Waste Catalogue (EWC) According to the European Waste Catalogue, Waste Codes are not product specific, but

application specific.

Other Information Do not dispose of waste into sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Large amounts

will affect pH and harm aquatic organisms. Do not let this chemical enter the environment.

SECTION 14: TRANSPORT INFORMATION

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IMDG/IMO

14.1. UN number UN1439

14.2. UN proper shipping name AMMONIUM DICHROMATE

14.3. Transport hazard class(es) 5.1 14.4. Packing group II

ADR

14.1. UN number UN1439

14.2. UN proper shipping name AMMONIUM DICHROMATE

14.3. Transport hazard class(es) 5.1 14.4. Packing group II

IATA

14.1. UN number UN1439

14.2. UN proper shipping name AMMONIUM DICHROMATE

14.3. Transport hazard class(es) 5.1 14.4. Packing group II

<u>14.5. Environmental hazards</u> Dangerous for the environment

Product is a marine pollutant according to the criteria set by IMDG/IMO

14.6. Special precautions for user No special precautions required

14.7. Transport in bulk according to Not applicable, packaged goods

Annex II of MARPOL73/78 and the

IBC Code

SECTION 15: REGULATORY INFORMATION

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

International Inventories		X = listed	l								
Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Ammonium bichromate	232-143-1	-		Х	Х	-	Х	Х	Х	Х	Х

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Ammonium bichromate	Application date: March 21, 2016 Sunset date: September 21, 2017 Exemption - None	Use restricted. See item 28. (see http://eur-lex.europa.eu/LexUriServ/L exUriServ.do?uri=CELEX:32006R190 7:EN:NOT for restriction details) Use restricted. See item 30. (see http://eur-lex.europa.eu/LexUriServ/L exUriServ.do?uri=CELEX:32006R190 7:EN:NOT for restriction details) Use restricted. See item 29. (see http://eur-lex.europa.eu/LexUriServ/L exUriServ.do?uri=CELEX:32006R190 7:EN:NOT for restriction details)	reproduction, Article 57c

National Regulations

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Ammonium bichromate	WGK 3	

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Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment.

Take note of Dir 94/33/EC on the protection of young people at work

Take note of Dir 92/85/EC on the protection of pregnant and breastfeeding women at work

Take note of Dir 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H272 - May intensify fire; oxidizer

H301 - Toxic if swallowed

H312 - Harmful in contact with skin

H314 - Causes severe skin burns and eye damage

H317 - May cause an allergic skin reaction

H340 - May cause genetic defects

H350 - May cause cancer

H360FD - May damage fertility. May damage the unborn child

H372 - Causes damage to organs through prolonged or repeated exposure

H400 - Very toxic to aquatic life

H410 - Very toxic to aquatic life with long lasting effects

H272 - May intensify fire; oxidizer

H330 - Fatal if inhaled

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

Legend

CAS - Chemical Abstracts Service

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

ENCS - Japanese Existing and New Chemical Substances

EINECS/ELINCS - European Inventory of Existing Commercial Chemical DSL/NDSL - Canadian Domestic Substances List/Non-Domestic

Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances **IECSC** - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

 $\ensuremath{\textbf{PBT}}$ - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

PNEC - Predicted No Effect Concentration

LD50 - Lethal Dose 50%

Substances List

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water **vPvB** - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of

Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime

Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

 \mathbf{MARPOL} - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - Volatile Organic Compounds

Key literature references and sources for data

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Chemical incident response training.

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 Creation Date
 12-Aug-2014

 Revision Date
 08-Dec-2016

Revision Summary Update to Format, SDS sections updated, 4, 8, 11, 12.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet