

SAFETY DATA SHEET

Version 4.0
Revision Date 01.12.2016
Supersedes Version: 3.4

SDS Number 300000000121
Print Date 16.12.2017

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier : Silicon tetrafluoride

Chemical formula : SiF₄

Synonyms : Silicon tetrafluoride, Tetrafluorosilane

Refer to Section 3 for REACH information

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

Use of the Substance/Mixture : General Industrial

Restrictions on Use : No data available.

1.3. Details of the supplier of the safety data sheet : Versum Materials UK, Limited
5th Floor
6 St. Andrew Street
London
EC4A 3AE

Email Address – Technical Information : techinfo@versummaterials.com

Telephone :

1.4. Emergency telephone number :

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Gases under pressure - Compressed gas. H280:Contains gas under pressure; may explode if heated.
Acute toxicity - Inhalation Category 2 H330:Fatal if inhaled.

SAFETY DATA SHEET

Version 4.0
Revision Date 01.12.2016

SDS Number 300000000121
Print Date 16.12.2017

Skin corrosion - Category 1A H314:Causes severe skin burns and eye damage.
Serious Eye Damage - Category 1 H318:Causes serious eye damage.

2.2. Label elements

Hazard pictograms/symbols



Signal Word: Danger

Hazard Statements:

H280:Contains gas under pressure; may explode if heated.
H314:Causes severe skin burns and eye damage.
H330:Fatal if inhaled.
EUH071:Corrosive to the respiratory tract.

Precautionary Statements:

Prevention	: P260:Do not breathe dust/fume/gas/mist/vapours/spray. P271:Use only outdoors or in a well-ventilated area P280:Wear protective gloves/protective clothing/eye protection/face protection. P284:Wear respiratory protection.
Response	: P305+P351+P338 :IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Disposal	: P501:Disposal of contents/container to be specified in accordance with regulations.

2.3. Other hazards

Toxic by inhalation.
Use a back flow preventative device in the piping.
Use only with equipment purged with and inert gas or evacuated prior to discharge.

SAFETY DATA SHEET

Version 4.0
Revision Date 01.12.2016

SDS Number 300000000121
Print Date 16.12.2017

Use only with equipment of compatible materials of construction, rated for cylinder pressure.
Do not open valve until connected to equipment prepared for use.
When returning cylinder install valve outlet cap or plug leak tight.
Close valve after each use and when empty.
High pressure gas.
May react violently with water.
Do not breathe gas.
Corrosive to eyes, respiratory system and skin.
Wear self-contained breathing apparatus and protective suit.

Environmental Effects

Dangerous for the environment.

SECTION 3: Composition/information on ingredients

3.1. Substances

Components	EINECS / ELINCS Number	CAS Number	Concentration (Volume)
Silicon tetrafluoride	232-015-5	7783-61-1	> 95%

Components	Classification (CLP)	REACH Reg. #
Silicon tetrafluoride	Acute Tox. Inha 2 ;H330 Skin Corr. 1A ;H314 Press. Gas (Liq.) ;H280 Eye Dam. 1 ;H318	

If REACH registration numbers do not appear the substance is either exempt from registration, does not meet the minimum volume threshold for registration, or the registration date has not yet come due.
Refer to section 16 for full text of each relevant hazard statement (H).

Concentration is nominal. For the exact product composition, please refer to technical specifications.

3.2. Mixtures : Not applicable.

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice : The potential for hydrogen fluoride formation exists with every exposure, therefore its toxicity must also be considered. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped. Use chemically

SAFETY DATA SHEET

Version 4.0
Revision Date 01.12.2016

SDS Number 300000000121
Print Date 16.12.2017

- protective clothing.
- Eye contact : Irrigate eye intermittently for 20 minutes with an aqueous calcium gluconate 1% solution, if available. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Keep eye wide open while rinsing.
- Skin contact : With gloved hand apply 2.5% calcium gluconate gel to the burn area. Alternative treatment is to soak the affected areas in an iced 0.13% water solution (1:750) of Zephiran® chloride (benzalkonium chloride solution, NF). Use ice cubes, not shaved ice, to prevent frostbite. If soaking is impractical, soaks or compresses may be used. (Do not use Zephiran® for burns of the eye.) If immersion is impractical, soaked compresses of the same solution should be applied to the area. Flush with copious amounts of water until treatment is available. Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and badly.
- Ingestion : Ingestion is not considered a potential route of exposure.
- Inhalation : As soon as possible give 2.5% to 3% calcium gluconate solution by nebulizer. Move to fresh air. In case of shortness of breath, give oxygen. If breathing has stopped or is labored, give assisted respirations. Supplemental oxygen may be indicated. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately. Mouth to mouth resuscitation is not recommended. Consult a doctor.

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

Symptoms : No data available.

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

Treatment : If exposed or concerned: Get medical attention/advice.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : All known extinguishing media can be used.

Extinguishing media which must not be used for safety reasons. : No data available.

5.2. Special hazards arising from the

: Upon exposure to intense heat or flame, cylinder will vent rapidly and or rupture violently. Product is nonflammable and does not support combustion. Use of

SAFETY DATA SHEET

Version 4.0
Revision Date 01.12.2016

SDS Number 300000000121
Print Date 16.12.2017

substance or mixture water may result in the formation of very toxic aqueous solutions. Move away from container and cool with water from a protected position. Keep containers and surroundings cool with water spray. Do not allow run-off from fire fighting to enter drains or water courses. If possible, stop flow of product.

5.3. Advice for firefighters : Use self-contained breathing apparatus and chemically protective clothing. Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask. EN 943-2: Protective clothing against liquid and gaseous chemicals, aerosols and solid particles. Gas-tight chemical protective suits for emergency teams.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures : Evacuate personnel to safe areas. Approach suspected leak areas with caution. Use self-contained breathing apparatus or positive pressure air line with mask and escape pack in areas where concentration is unknown or above the exposure limits. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ventilate the area.

6.2. Environmental precautions : Should not be released into the environment. Prevent further leakage or spillage if safe to do so.

6.3. Methods and material for containment and cleaning up : Ventilate the area. Reduce vapor with fog or fine water spray.

Additional advice : If possible, stop flow of product. Increase ventilation to the release area and monitor concentrations. If leak is from cylinder or cylinder valve, call the emergency telephone number. If the leak is in the user's system, close the cylinder valve, safely vent the pressure, and purge with an inert gas before attempting repairs.

6.4. Reference to other sections : For more information refer to Sections 8 & 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Only experienced and properly instructed persons should handle compressed gases/cryogenic liquids. Protect cylinders from physical damage; do not drag, roll, slide or drop. Do not allow storage area temperature to exceed

SAFETY DATA SHEET

Version 4.0
Revision Date 01.12.2016

SDS Number 300000000121
Print Date 16.12.2017

50°C (122°F). Before using the product, determine its identity by reading the label. Know and understand the properties and hazards of the product before use. When doubt exists as to the correct handling procedure for a particular gas, contact the supplier. Do not remove or deface labels provided by the supplier for the identification of the cylinder contents. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. Use an adjustable strap wrench to remove over-tight or rusted caps. Before connecting the container, check the complete gas system for suitability, particularly for pressure rating and materials. Before connecting the container for use, ensure that back feed from the system into the container is prevented. Ensure the complete gas system is compatible for pressure rating and materials of construction. Ensure the complete gas system has been checked for leaks before use. Employ suitable pressure regulating devices on all containers when the gas is being emitted to systems with lower pressure rating than that of the container. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Open valve slowly. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Close container valve after each use and when empty, even if still connected to equipment. Never attempt to repair or modify container valves or safety relief devices. Damaged valves should be reported immediately to the supplier. Close valve after each use and when empty. Replace outlet caps or plugs and container caps as soon as container is disconnected from equipment. Do not subject containers to abnormal mechanical shock. Never attempt to lift a cylinder by its valve protection cap or guard. Do not use containers as rollers or supports or for any other purpose than to contain the gas as supplied. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit. Keep container valve outlets clean and free from contaminants particularly oil and water. Do not smoke while handling product or cylinders. Never re-compress a gas or a gas mixture without first consulting the supplier. Never attempt to transfer gases from one cylinder/container to another. Always use backflow protective device in piping. Purge system with dry inert gas (e.g. helium or nitrogen) before gas is introduced and when system is placed out of service. Avoid suckback of water, acid and alkalis. Installation of a cross purge assembly between the cylinder and the regulator is recommended. When returning cylinder install valve outlet cap or plug leak tight. Never use direct flame or electrical heating devices to raise the pressure of a container. Containers should not be subjected to temperatures above 50°C (122°F).

7.2. Conditions for safe storage, including any incompatibilities

Containers should be stored in a purpose build compound which should be well ventilated, preferably in the open air. Containers should be stored in the vertical position and properly secured to prevent toppling. The container valves should be tightly closed and where appropriate valve outlets should be capped or plugged. Container valve guards or caps should be in place. Full containers should be stored so that oldest stock is used first. Observe all regulations and local requirements regarding storage of containers. Stored containers should be periodically checked for general condition and leakage. Local codes may have special requirements for toxic gas storage. Protect containers stored in the open against rusting and extremes of weather. Containers should not be stored in conditions likely to encourage corrosion. Store containers in location free from fire risk and away from sources of heat and ignition. Full and empty cylinders should be segregated. Do not allow storage temperature to exceed 50°C (122°F). Return empty containers in a timely manner.

Technical measures/Precautions

Containers should be segregated in the storage area according to the various categories (e.g. flammable, toxic, etc.) and in accordance with local regulations. Keep away from combustible material.

SAFETY DATA SHEET

Version 4.0
Revision Date 01.12.2016

SDS Number 300000000121
Print Date 16.12.2017

7.3. Specific end use(s)

Refer to section 1 or the extended SDS if applicable.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

If applicable, refer to the extended section of the SDS for further information on CSA.

8.2. Exposure controls

Engineering measures

Provide natural or mechanical ventilation to prevent accumulation above exposure limits.

Personal protective equipment

- Respiratory protection** : Keep self contained breathing apparatus readily available for emergency use. Users of breathing apparatus must be trained. Use gas filters and full face mask, where exposure limits may be exceeded for a short-term period, e.g. connecting or disconnecting containers. Gas filters do not protect against oxygen deficiency. Gas filters may be used if all surrounding conditions e.g. type and concentration of the contaminant(s) and duration of use are known. Standard EN 14387 - Gas filter(s), combined filter(s) and full face mask - EN 136. Consult respiratory device supplier's product information for the selection of the appropriate device. Self contained breathing apparatus is recommended, where unknown exposure may be expected, e.g. during maintenance activities on installation systems. Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.
- Hand protection** : Wear working gloves when handling gas containers. Standard EN 388 - Protective gloves against mechanical risk. Wear chemically resistant protective gloves. Standard EN 374 - Protective gloves against chemicals. Consult glove manufacturer's product information on material suitability and material thickness. The breakthrough time of the selected gloves must be greater than the intended use period.
- Eye/face Protection** : Wear safety glasses with side shields. Wear goggles and a face shield when transfilling or breaking transfer connections. Standard EN 166 - Personal eye-protection.

SAFETY DATA SHEET

Version 4.0
Revision Date 01.12.2016

SDS Number 300000000121
Print Date 16.12.2017

- Skin and body protection : Safety shoes are recommended when handling cylinders. Standard EN ISO 20345 - Personal protective equipment - Safety footwear. Keep suitable chemically resistant protective clothing readily available for emergency use. Standard EN943-1 - Full protective suits against liquid, solid and gaseous chemicals.
- Special instructions for protection and hygiene : Ensure adequate ventilation, especially in confined areas. Provide good ventilation and/or local exhaust to prevent accumulation of concentrations above exposure limits.
- Environmental Exposure Controls : If applicable, refer to the extended section of the SDS for further information on CSA.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- (a/b) Physical state/Colour : Compressed gas. Gives off white fumes in moist air
- (c) Odour : Pungent.
- (d) Density : 0.0043 g/cm³ (0.268 lb/ft³) at 21 °C (70 °F)
Note: (as vapor)
- (e) Relative Density : No data available.
- (f) Melting point / freezing point : -124 °F (-86.8 °C)
- (g) Boiling point/range : -139 °F (-95.2 °C)
- (h) Vapor pressure : Not applicable.
- (i) Water solubility : Hydrolyses.
- (j) Partition coefficient (n-octanol/water) : Not applicable.
- (k) pH : Not applicable.
- (l) Viscosity : Not applicable.
- (m) Particle characteristics : No data available.
- (n) Lower and upper explosion / flammability limits : No data available.

SAFETY DATA SHEET

Version 4.0
Revision Date 01.12.2016

SDS Number 300000000121
Print Date 16.12.2017

- (o) Flash point : Not applicable.
(p) Autoignition temperature : No data available.
(q) Decomposition temperature : No data available.

9.2. Other information

- Explosive properties : No data available.
Oxidizing properties : No data available.
Molecular Weight : 104 g/mol
Odor threshold : No data available.
Evaporation rate : Not applicable.
Flammability (solid, gas) : Refer to product classification in Section 2
Specific Volume : 0.2304 m³/kg (3.69 ft³/lb) at 21 °C (70 °F)
Upper flammability limit : Not applicable.
Lower flammability limit : Not applicable.
Relative vapor density : 3.6 (air = 1)

SECTION 10: Stability and reactivity

- 10.1. Reactivity : Refer to possibility of hazardous reactions and/or incompatible materials sections.
10.2. Chemical stability : Stable under normal conditions.
10.3. Possibility of hazardous reactions : No data available.
10.4. Conditions to avoid : No data available.
10.5. Incompatible materials : No data available.

SAFETY DATA SHEET

Version 4.0
Revision Date 01.12.2016

SDS Number 300000000121
Print Date 16.12.2017

10.6. Hazardous decomposition products : No data available.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure

- Effects on Eye : Irritating to eyes. Causes severe eye burns. May cause permanent eye injury.
- Effects on Skin : Causes skin irritation. Causes skin burns.
- Inhalation Effects : Irritating to respiratory system. Can cause severe lung damage. Delayed adverse effects possible. Prolonged exposure to small concentrations may result in pulmonary edema. Delayed fatal pulmonary edema possible.
- Ingestion Effects : Ingestion is not considered a potential route of exposure.
- Symptoms : No data available.

Acute toxicity

- Acute Oral Toxicity : No data is available on the product itself.
- Acute Inhalation Toxicity : LC50 (1 h) : 922 ppm Species : Rat.
- Acute Dermal Toxicity : No data is available on the product itself.
- Skin corrosion/irritation : Causes skin burns.
- Serious eye damage/eye irritation : Risk of serious damage to eyes.
- Sensitization. : No data available.

Chronic toxicity or effects from long term exposures

- Carcinogenicity : No data available.
- Reproductive toxicity : No data is available on the product itself.
- Germ cell mutagenicity : No data is available on the product itself.

SAFETY DATA SHEET

Version 4.0
Revision Date 01.12.2016

SDS Number 300000000121
Print Date 16.12.2017

Specific target organ systemic toxicity (single exposure) : No data available.

Specific target organ systemic toxicity (repeated exposure) : Animals exposed to hydrogen fluoride have exhibited kidney, lung, heart and liver damage. Direct toxicity of this material may be accompanied by fluoride absorption and systemic depletion of calcium ion, an essential electrolyte. Chronic exposure may cause abnormal calcification in the bone structure (fluorosis) due to low level systemic absorption of fluoride. Fluoride toxicity from acute inhalation exposure to this product is unlikely due to the noxious and corrosive nature of this gas. Death from respiratory tract damage would likely occur before significant amounts of fluoride are absorbed. The potential for hydrogen fluoride formation exists with every exposure; therefore, its toxicity must also be considered.

Aspiration hazard : No data available.

SECTION 12: Ecological information

12.1. Toxicity

Aquatic toxicity : May cause pH changes in aqueous ecological systems.

Toxicity to other organisms : No data is available on the product itself.

12.2. Persistence and degradability

No data available.

12.3. Bioaccumulative potential

Refer to Section 9 "Partition Coefficient (n-octanol/water)".

12.4. Mobility in soil

Because of its high volatility, the product is unlikely to cause ground pollution.

12.5. Results of PBT and vPvB assessment

If applicable, refer to the extended section of the SDS for further information on CSA.

SAFETY DATA SHEET

Version 4.0
Revision Date 01.12.2016

SDS Number 300000000121
Print Date 16.12.2017

12.6. Other adverse effects

No data available.

Effect on the ozone layer

Ozone Depleting Potential : No data available.

Global Warming Potential : No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods : In accordance with local and national regulations. Return unused product in original cylinder to supplier. Contact supplier if guidance is required. Must not be discharged to atmosphere. Refer to the EIGA code of practice Doc. 30 "Disposal of Gases", downloadable at <http://www.eiga.org> for more guidance on suitable disposal methods. List of hazardous waste codes: 16 05 04: Gases in pressure containers (including halons) containing dangerous substances.

Contaminated packaging : Return cylinder to supplier.

SECTION 14: Transport information

ADR

UN/ID No. : UN1859
Proper shipping name : SILICON TETRAFLUORIDE
Class or Division : 2
Tunnel Code : (C/D)
Label(s) : 2.3 (8)
ADR/RID Hazard ID no. : 268
Marine Pollutant : No

IATA

Transport Forbidden

IMDG

UN/ID No. : UN1859
Proper shipping name : SILICON TETRAFLUORIDE

12/17

SAFETY DATA SHEET

Version 4.0
Revision Date 01.12.2016

SDS Number 300000000121
Print Date 16.12.2017

Class or Division : 2.3
Label(s) : 2.3 (8)
Marine Pollutant : No
Segregation Group: : None

RID

UN/ID No. : UN1859
Proper shipping name : SILICON TETRAFLUORIDE
Class or Division : 2
Label(s) : 2.3 (8)
Marine Pollutant : No

Transport in bulk according to Annex II of Marpol and the IBC Code
For complete transportation information, contact customer service.

Further Information

Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. The transportation information is not intended to convey all specific regulatory data relating to this material. For complete transportation information, contact customer service.

SECTION 15: Regulatory information

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

Country	Regulatory list	Notification
USA	TSCA	Included on Inventory.
EU	EINECS	Included on Inventory.
Canada	DSL	Included on Inventory.
Australia	AICS	Included on Inventory.
Japan	ENCS	Included on Inventory.
South Korea	ECL	Included on Inventory.
China	SEPA	Included on Inventory.
Philippines	PICCS	Included on Inventory.

Other Regulations

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

SAFETY DATA SHEET

Version 4.0
Revision Date 01.12.2016

SDS Number 300000000121
Print Date 16.12.2017

COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Regulation (EC) No 1272/2008 the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Control of Substances Hazardous to Health Regulations 2002 (as amended)

Health and Safety at Work etc. Act 1974

Management of Health and Safety at Work Regulations (Northern Ireland) 2000 c.388, and as amended

The Health and Safety at Work etc. Act 1974 (Application to Environmentally Hazardous Substances) Regulations 2002 (England and Wales and Scotland) 11 March 2002 c.282, and as amended

Health and Safety at Work Order (Application to Environmentally Hazardous Substances) Regulations (Northern Ireland) 2003 (Northern Ireland) 14 March 2003 c52, and as amended

The Control of Major Accident Hazards Regulations 2015 c483

The Control of Major Accident Hazards Regulations (Northern Ireland) 2015 c325

The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2011 c1885, and as amended

The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations with amendments (Northern Ireland) 2011 c365

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 c.407

The Water Environment Regulations (Northern Ireland) 2017 c.81

Pollution Prevention and Control Act 1999 c.24

The Fluorinated Greenhouse Gases Regulations 2015 c.310

SAFETY DATA SHEET

Version 4.0
Revision Date 01.12.2016

SDS Number 300000000121
Print Date 16.12.2017

The Fluorinated Greenhouse Gases Regulations (Northern Ireland) 2015
c.425

The Acetylene Safety (England and Wales and Scotland) Regulations 2014
c.1639

The Highly Flammable Liquids and Liquefied Petroleum Gases Regulations
1972 c.917

The Highly Flammable Liquids and Liquefied Petroleum Gases Regulations
(Northern Ireland) 1975 c.256

Dangerous Substances and Explosive Atmospheres Regulations (Northern
Ireland) 2003 c.152

The Dangerous Substances and Explosive Atmospheres Regulations 2002
c.2776

Pollution Prevention and Control Act 1999

The Environmental Permitting (England and Wales) Regulations 2016

Ozone Depleting Substances Regulations 2015

15.2. Chemical safety assessment

If this product does not contain exposure scenarios, the components in this product are either exempt from REACH, do not meet the minimum volume threshold for a CSA, or the CSA has not yet been completed.

SECTION 16: Other information

Ensure all national/local regulations are observed.

Hazard Statements:

H280 Contains gas under pressure; may explode if heated.

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

H330 Fatal if inhaled.

Indication of Method:

Gases under pressure Compressed gas. Contains gas under pressure; may explode if heated. Calculation method

SAFETY DATA SHEET

Version 4.0
Revision Date 01.12.2016

SDS Number 300000000121
Print Date 16.12.2017

Acute toxicity Category 2 Fatal if inhaled. Calculation method

Skin corrosion Category 1A Causes severe skin burns and eye damage. Calculation method

Serious Eye Damage Category 1 Causes serious eye damage. Calculation method

Abbreviations and acronyms:

ATE - Acute Toxicity Estimate

CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008

REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006

EINECS - European Inventory of Existing Commercial Chemical Substances

ELINCS - European List of Notified Chemical Substances

CAS# - Chemical Abstract Service number

PPE - Personal Protection Equipment

Kow - octanol-water partition coefficient

DNEL - Derived No Effect Level

LC50 - Lethal Concentration to 50 % of a test population

LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose)

NOEC - No Observed Effect Concentration

PNEC - Predicted No Effect Concentration

RMM - Risk Management Measure

OEL - Occupational Exposure Limit

PBT - Persistent, Bioaccumulative and Toxic

vPvB - Very Persistent and Very Bioaccumulative

STOT - Specific Target Organ Toxicity

CSA - Chemical Safety Assessment

EN - European Standard

UN - United Nations

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road

IATA - International Air Transport Association

IMDG - International Maritime Dangerous Goods

RID - Regulations concerning the International Carriage of Dangerous Goods by Rail

WGK - Water Hazard Class

Key literature references and sources for data:

ECHA - Guidance on the compilation of safety data sheets

ECHA - Guidance on the application of the CLP Criteria

ARIEL database

Prepared by : Versum Materials, Product Regulatory Department

For additional information, please visit Versum Materials' Product Stewardship web site.

SAFETY DATA SHEET

Version 4.0
Revision Date 01.12.2016

SDS Number 300000000121
Print Date 16.12.2017

<http://www.versummaterials.com/productstewardship/>

This Safety Data Sheet has been established in accordance with the applicable European Directives and applies to all countries that have translated the Directives in their national laws. COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Details given in this document are believed to be correct at the time of going to press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.
