

Safety Data Sheet Crosslinker L10

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name Crosslinker L10
Product code L010
REACH registration number 01-2119486683-25-XXXX

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

Recommended use Crosslinker in oilfield applications
Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier identification
Schlumberger Oilfield UK PLC
Victory House, Churchill Court
Manor Royal, Crawley
West Sussex RH10 9LU
+ 47 51577424
SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518

2. Hazards identification

2.1 Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Health hazards

Reproductive toxicity	Category 1B
-----------------------	-------------

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label Elements



Signal word
DANGER

Hazard statements

H360 - May damage fertility or the unborn child

Precautionary Statements - EU (§28, 1272/2008)

P201 - Obtain special instructions before use

P202 - Do not handle until all safety precautions have been read and understood

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

P308 + P313 - IF exposed or concerned: Get medical advice/ attention

P501 - Dispose of contents/ container to an approved waste disposal plant

-

-

Contains

Boric acid

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on ingredients

3.1 Substances

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
Boric acid	233-139-2	10043-35-3	60 - 100	Repr.Cat2;R60-61	Repr. 1B (H360FD)	01-2119486683-25-x xxx

3.2 Mixtures

Not Applicable

Comments

Listed on SVHC

4. First aid measures

4.1 First Aid

Inhalation	Keep at rest. Move the exposed person to fresh air at once. If breathing is difficult, (trained personnel should) give oxygen. Seek medical attention at once.
Ingestion	Do NOT induce vomiting. Rinse mouth. If conscious, drink plenty of water. Immediate medical attention is required.
Skin contact	Remove contaminated clothing and launder before reuse. Rinse immediately with plenty of water and seek medical advice.
Eye contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye. Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

General advice	The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.
-----------------------	--

Main symptoms

Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	Treat symptomatically.
---------------------------	------------------------

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water spray or fog is preferred; if water not available use dry chemical, CO₂ or regular foam.

Extinguishing media which shall not be used for safety reasons

None known.

5.2 Special hazards arising from the substance or mixture

Unusual fire and explosion hazards

None known.

Hazardous combustion products

Heating or fire can release toxic gas.

5.3 Advice for firefighters

Special protective equipment for fire-fighters

As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures

Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Do not breathe dust. Avoid contact with the skin and the eyes. Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls

Avoid release to the environment.

6.3 Methods and materials for containment and cleaning up

Methods for Containment

Prevent further leakage or spillage if safe to do so. Prevent dust cloud.

Methods for cleaning up

Avoid generating or breathing dust. Take up mechanically and collect in suitable container for disposal. Clean contaminated surface thoroughly. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling

Handle in accordance with good industrial hygiene and safety practice. Not to be used by pregnant workers and workers who have recently given birth or who are breastfeeding. Do not breathe dust. Avoid handling causing generation of dust. Avoid contact with skin, eyes and clothing.

Hygiene measures

Use good work and personal hygiene practices to avoid exposure Wash hands and face before breaks and immediately after handling the product. Remove contaminated clothing. Do not eat, drink or smoke when using this product.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions

Ensure adequate ventilation. Keep airborne concentrations below exposure limits.

Storage precautions

Keep containers tightly closed in a dry, cool and well-ventilated place. Store at ambient conditions Protect from moisture Store away from incompatibles, Bases Strong reducing agents. Active metals. Anhydrides.

Packaging material Use specially constructed containers only

Packaging materials to be avoided Metal

7.3 Specific end uses

See also Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Component	EU OEL - Third List	Austria	Australia	Denmark
Boric acid	Not determined	Not determined	Not determined	Not determined
Component	Malaysia	France	Germany	Hungary
Boric acid	Not determined	Not determined	10 mg/m ³ MAK	Not determined
Component	New Zealand	Italy	Netherlands	Norway
Boric acid	Not Determined	Not determined	Not determined	Not determined
Component	Poland	Portugal	Romania	Russia
Boric acid	Not determined	6 mg/m ³ STEL inhalable fraction 2 mg/m ³ TWA inhalable fraction Borate compounds, inorganic	Not determined	10 mg/m ³ MAC
Component	Spain	Switzerland	Turkey	UK
Boric acid	6 mg/m ³ VLA-EC 2 mg/m ³ VLA-ED it is prohibited the partial or complete commercialization or use of this substance as a phytosanitary o biocide compound	10 mg/m ³ STEL inhalable 15 min 10 mg/m ³ MAK inhalable	Not determined	Not determined

Component Information

Derived No Effect Level (DNEL)

Long term exposure systemic effects

Boric acid	
Dermal	392 mg/kg bw/day
Inhalation	8.3 mg/m ³

Predicted No Effect Concentration (PNEC)

Boric acid	
Fresh Water	2.9 mg/L
Sea Water	2.9 mg/L
Soil	5.7 mg/kg
Impact on Sewage Treatment	10 mg/L
Intermittent release	13.7 mg/L

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure

Ensure adequate ventilation. Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection

Hand protection

Respiratory protection

It is good practice to wear Safety Glasses with Side-shields when handling any chemical. Impervious gloves made of: Neoprene, Nitrile, Rubber, Frequent change is advisable. Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust), Half mask with a particle filter P2 (BS EN 143), At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection

Wear appropriate personal protective clothing to prevent skin contact, Eye wash and emergency shower must be available at the work place.

Hygiene measures

Wash hands before eating, drinking or smoking, Remove and wash contaminated clothing before re-use.



9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Granules
Odour	Odourless
Colour	White
Odor threshold	Not applicable

<u>Property</u>	<u>Values</u>	<u>Remarks</u>
pH	No information available	

pH @ dilution	4	10g/L @20°C
Melting/freezing point	> 171 °C / 339.8 °F	
Boiling point/range	No information available	
Flash Point	No information available	
Evaporation rate		
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability Limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	0.27 kPa	
Vapor density	No information available	
Specific gravity	1.4	@ 20 °C
Bulk density	780-815 kg/m³	
Relative density	1.49	@ 23 °C.
Water solubility	5g/100ml	@ 20 °C
Solubility in other solvents	No information available	
Autoignition temperature	Not Applicable	
Decomposition temperature	169-185°C	
Kinematic viscosity		
Viscosity, dynamic	No information available	
Log Pow	-1.09	

Explosive properties	Not Applicable
Oxidizing properties	Not Applicable

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None
Density VALUE	No information available

10. Stability and reactivity

10.1 Reactivity

May release hydrogen gas (explosive) on contact with metals,. Active metals.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization

Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Protect from moisture. Store at ambient conditions.

10.5 Incompatible materials

Bases. Strong reducing agents. Anhydrides. Active metals.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product information	Not to be used by pregnant workers and workers who have recently given birth or who are breastfeeding.
Inhalation	Inhalation of dust in high concentration may cause irritation of respiratory system.
Eye contact	Contact with eyes may cause irritation.
Skin contact	May cause skin irritation and/or dermatitis.
Ingestion	Swallowing large amounts may be harmful. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.
Unknown acute toxicity	Not Applicable.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Boric acid	= 2660 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 0.16 mg/L (Rat) 4 h

Sensitisation	This product does not contain any components suspected to be sensitizing.
Mutagenic effects	This product does not contain any known or suspected mutagens.
Carcinogenicity	This product does not contain any known or suspected carcinogens.

Reproductive toxicity	May damage fertility or the unborn child.
Routes of exposure	Oral.
Routes of entry	No route of entry noted.
Specific target organ toxicity (single exposure)	Not classified
Specific target organ toxicity (repeated exposure)	Not classified.
Aspiration hazard	No hazard from product as supplied.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae

See component information below.

Toxicity to fish

See component information below.

Toxicity to daphnia and other aquatic invertebrates

See component information below.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Boric acid	1020 mg/L LC50 (Carassius auratus) = 72 h	No information available	115 - 153 mg/L EC50 (Daphnia magna) = 48 h

12.2 Persistence and degradability

The product is not biodegradable.

12.3 Bioaccumulative potential

Does not bioaccumulate.

Log Pow

-1.09

12.4 Mobility in soil

Mobility

The product is water soluble, and may spread in water systems.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products	Dispose of as hazardous waste in compliance with local and national regulations.
Contaminated packaging	Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal.
EWC waste disposal No.	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 16 03 03 - inorganic wastes containing dangerous substances

14. Transport information

14.1 UN number

Not regulated

14.2 Proper shipping name

The product is not covered by international regulation on the transport of dangerous goods

14.3. Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG Hazard class	Not regulated
ICAO Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing Group	Not regulated
IMDG Packing group	Not regulated
ICAO Packing group	Not regulated

14.5 Environmental hazard

Marine pollutant

No

14.6 Special precautions

Not Applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory information

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

Australian Standard for the Uniform Scheduling of Drugs and Poisons

Boric acid
Schedule 5

Commission Regulation (EU) No 453/2010 of 20 May 2010 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 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/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, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

International inventories

USA, Toxic Substances Control Act inventory (TSCA)	Complies
European Union - EINECS and ELINCS	Complies
Canada, Domestic Substance List (DSL)	Complies
Philippines (PICCS)	Complies
Inventory - Japan - Existing and New Chemicals list	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korea (KECL)	Complies
Inventory - New Zealand - Inventory of Chemicals (NZIoC)	Complies

15.2 Chemical Safety Report

No information available

16. Other information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Nicola Anderson
Supersedes date	12/May/2014
Revision date	22/Jul/2015
Version	8
The following sections have been revised:	Updated according to GHS/CLP.

Text of R phrases mentioned in Section 3

R60 - May impair fertility

R61 - May cause harm to the unborn child

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

H360 - May damage fertility or the unborn child

Disclaimer

The information contained herein is considered in good faith as reliable of the date issued and is based upon on measurements, tests or data derived from supplier's own study or furnished by others. In providing this SDS information, Supplier makes no express or implied warranties as to the information or product; merchantability or fitness of purpose; any express or implied warranty; or non-infringement of intellectual property rights; and supplier assumes no responsibility for any direct, special or consequential damages, results obtained, or the activities of others. To the maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.