



Safety Data Sheet Crosslinker J604

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name Crosslinker J604
Product code J604

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

Recommended Use Used as a fracturing additive in oilfield applications

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Logeco Inc.
51 Kulmanov str. Atyrau
Atyrau region 060011
Republic of Kazakhstan
+7 (7122) 586006

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Asia Pacific +65 3158 1074, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, USA +1 281 595 3518/+1 866 928 0789, Canada +1 800 579 7421, Argentina: +54 11 5984 3690, Brazil : 0800-720-8000 /0800-777-2323 (WGRA)

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Acute toxicity - Oral	Category 4
Specific target organ toxicity - Repeated exposure	Category 2

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

**Signal word**

WARNING

Hazard Statements

H302 - Harmful if swallowed

H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary statements

P260 - Do not breathe dust/fume/gas/mist/vapors/spray

P264 - Wash face, hands and any exposed skin thoroughly after handling

P270 - Do not eat, drink or smoke when using this product

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

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

P330 - Rinse mouth

Supplementary precautionary statements

P314 - Get medical advice/attention if you feel unwell

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Contains

Ethylene Glycol

Sodium Tetraborate Decahydrate

but-2-enedioic acid

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
Ethylene Glycol	203-473-3	107-21-1	10-30
Sodium Tetraborate Decahydrate	215-540-4	1303-96-4	4.2
but-2-enedioic acid	203-743-0	110-17-8	1

Comments

The product contains other ingredients which do not contribute to the overall classification.

4. First Aid Measures

4.1 First aid measures**Inhalation**

If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation

	develops or if breathing becomes difficult.
Ingestion	Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Seek medical attention if irritation occurs.
Skin contact	Wash off immediately with soap and plenty of water. Remove contaminated clothing and shoes. Seek medical attention if irritation occurs.
Eye Contact	Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

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.

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 Fog, Alcohol Foam, CO₂, Dry Chemical.

Extinguishing media which must 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

Thermal decomposition can lead to release of irritating gases and vapors

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

Avoid contact with skin, eyes and inhalation of vapors. Wash thoroughly after handling. 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. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up**Methods for containment**

Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up

Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local/national regulations (see Section 13). 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. Avoid contact with skin, eyes and clothing. Avoid spills and splashing during use. Do not breathe vapors or spray mist.

Hygiene Measures

Use good work and personal hygiene practices to avoid exposure. Do not eat, drink or smoke when using this product Wash hands and face before breaks and immediately after handling the 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 in original container. Avoid heat, flames and other sources of ignition. Keep away from direct sunlight. Store away from incompatibles, Strong oxidizing agents
Storage class	Chemical storage.
Packaging materials	Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters**Component Information**

Chemical Name	Arabic	Australia	Egypt
Ethylene Glycol	Not determined	40ppmSTELvapour 104mg/m ³ STELvapour 10mg/m ³ TWAparticulate	39.4 ppm Ceiling 100 mg/m ³ Ceiling

		20ppmTWA vapour 52mg/m ³ TWA vapour	
Sodium Tetraborate Decahydrate	Not determined	5mg/m ³ TWA 1mg/m ³ TWA	5 mg/m ³ TWA
but-2-enedioic acid	Not determined	Not determined	Not determined
Chemical Name	India	Indonesian	Japan
Ethylene Glycol	Not determined	100 mg/m ³ STEL	Not determined
Sodium Tetraborate Decahydrate	Not determined	5 mg/m ³ TWA	Not determined
but-2-enedioic acid	Not determined	Not determined	Not determined
Chemical Name	Kazakhstan	Kuwait	New Zealand
Ethylene Glycol	5 mg/m ³ MAC	100 mg/m ³ STEL	50 ppm Ceiling mist and vapour 127 mg/m ³ Ceiling mist and vapour
Sodium Tetraborate Decahydrate	Not determined	Not determined	5 mg/m ³ TWA
but-2-enedioic acid	Not determined	Not determined	Not determined
Chemical Name	Malaysia	Philippines	Russia
Ethylene Glycol	39.4 ppm Ceiling aerosol 100 mg/m ³ Ceiling aerosol	Not determined	10 mg/m ³ STEL 5 mg/m ³ TWA
Sodium Tetraborate Decahydrate	5 mg/m ³ TWA	Not determined	Not determined
but-2-enedioic acid	Not determined	Not determined	5 mg/m ³ MAC
Chemical Name	Thailand	Vietnam	Turkey
Ethylene Glycol	Not determined	10 mg/m ³ TWA 60 mg/m ³ TWA 20 mg/m ³ STEL 125 mg/m ³ STEL	40 ppm STEL 104 mg/m ³ STEL Skin 20 ppm TWA 52 mg/m ³ TWA
Sodium Tetraborate Decahydrate	5 mg/m ³ TWA	Not determined	Not determined
but-2-enedioic acid	Not determined	Not determined	Not determined

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 Controls

Keep airborne concentrations below exposure limits Ensure adequate ventilation, especially in confined areas

Personal protective equipment

Eye protection

Tightly fitting safety goggles Safety glasses with side-shields

Hand protection

Wear chemical resistant gloves such as nitrile or neoprene. Be aware that liquid may penetrate the gloves. Frequent change is advisable.

Respiratory protection

In case of insufficient ventilation wear suitable respiratory equipment Use respirator with organic vapor protection (A, brown) At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection

Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.

Hygiene Measures

Wash hands before breaks and immediately after handling the product Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure

Use appropriate containment to avoid environmental contamination See section 6 for more

information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Opaque
Odor	Odorless
Color	Beige or Milky white
Odor threshold	Not applicable

<u>Property</u>	<u>Values</u>	<u>Remarks</u>
pH	6.5 - 7.2	
pH @ dilution	N/D	
Melting / freezing point	No information available	
Boiling point/range	No information available	
Flash point		
Evaporation rate (BuAc =1)	No information available	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	1.27 - 1.37	
Bulk density	No information available	
Relative density	No information available	
Water solubility	Miscible with water.	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity		
Dynamic viscosity	No information available	
log Pow	No information available	
Explosive properties	No information available	
Oxidizing properties	No information available	

9.2 Other information

Pour point	< -15 °C / < 5 °F
Molecular weight	No information available
VOC content(%)	No information available
Density	No information available

Comments

The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization

Hazardous polymerization does not occur.

10.4 Conditions to avoid

Avoid heat, flames and other sources of ignition. Keep away from direct sunlight.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological Information

11.1 Information on toxicological effects**Acute toxicity****Inhalation**

Inhalation of vapors in high concentration may cause irritation of respiratory system.
Harmful: danger of serious damage to health by prolonged exposure through inhalation.

Eye contact

May cause slight irritation.

Skin contact

Prolonged contact may cause redness and irritation.

Ingestion

Harmful if swallowed. May cause adverse kidney effects. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Unknown acute toxicity

0% of the mixture consists of ingredient(s) of unknown toxicity.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethylene Glycol	= 4700 mg/kg (Rat)	= 9530 µL/kg (Rabbit) = 10600 mg/kg (Rat)	No data available
Sodium Tetraborate Decahydrate	LD50 = 2660 mg/kg (Rat)	> 10000 mg/kg (Rabbit)	No data available
but-2-enedioic acid	= 9300 mg/kg (Rat)	> 20000 mg/kg (Rabbit)	No data available

Sensitization

Not classified.

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

Contains a known or suspected reproductive toxin.

Routes of Exposure

Inhalation. Skin contact. Eye contact. Ingestion.

Routes of entry

Inhalation. Skin contact. Eye contact.

Specific target organ toxicity - Single exposure

Not classified

Specific target organ toxicity - Repeated exposure	Category 2.
Target organ effects	Kidney.
Aspiration hazard	Not classified.
Other information	Key literature references and sources for data. See Section 16 for more information.

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.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Ethylene Glycol	14 - 18 mL/L LC50 Oncorhynchus mykiss 96 h = 41000 mg/L LC50 Oncorhynchus mykiss 96 h = 16000 mg/L LC50 Poecilia reticulata 96 h = 40000 - 60000 mg/L LC50 Pimephales promelas 96 h = 40761 mg/L LC50 Oncorhynchus mykiss 96 h = 27540 mg/L LC50 Lepomis macrochirus 96 h	6500 - 13000 mg/L EC50 Pseudokirchneriella subcapitata 96 h	= 46300 mg/L EC50 Daphnia magna 48 h
Sodium Tetraborate Decahydrate	340 mg/L LC50 (Limanda limanda) = 96 h	2.6 - 21.8	1085 - 1402 mg/L LC50 (Daphnia magna) = 48 h
but-2-enedioic acid	= 245 mg/L LC50 Brachydanio rerio 48 h	= 41 mg/L EC50 Desmodesmus subspicatus 72 h	= 73.6 mg/L EC50 Daphnia magna 24 h 204 - 220 mg/L EC50 Daphnia magna 48 h

12.2 Persistence and degradability

No information available.

12.3 Bioaccumulative potential

No information available.

12.4 Mobility

Mobility

No information available.

Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known. Check for additional information in sect. 7.

12.7 Other information

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations**13.1 Waste treatment methods****Waste from residues/unused products**

Dispose of in accordance with local regulations.

Contaminated packaging

Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information**14.1. UN number**

Not regulated

14.2. UN 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/ANTAQ Hazard class Not regulated

ICAO/ANAC Hazard class/division Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group Not regulated

IMDG/ANTAQ Packing group Not regulated

ICAO/ANAC Packing group Not regulated

14.5 Environmental hazard**Marine pollutant**

No

14.6 Special precautions

None

14.7 Transport in bulk according to Annex I/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

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons

Ethylene Glycol
Schedule 6
Schedule 5
Sodium Tetraborate Decahydrate
Schedule 4
Schedule 5

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Does not comply
Japan (ENCS)	Does not comply
China (IECSC)	Does not comply
Australia (AICS)	Complies
Korean (KECL)	Does not comply
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by Global Regulatory Compliance - Chemicals (GRC - Chemicals)

Supersedes Date: 30-Sep-2015

Revision date 22-Feb-2019

Version 3

This SDS has been revised in the following section(s) All sections. Updated according to GHS/CLP.

Key literature references and sources for data

www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	2*
Flammability	1

Physical hazard	0
PPE	X

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