

SAFETY DATA SHEET

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

1.1. Product identifier

Trade name or designation of the mixture Joule Sol-Fluid-20

Registration number -

Synonyms None

Issue date 10-November-2016

Version number 04.02

Revision date 15-November-2023

Supersedes date 22-October-2021

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

Identified uses Solar Fluid

Uses advised against None known.

1.3. Details of the supplier of the safety data sheet

Supplier Joule IE,
Unit 407, NW Business Park
Ballycoolin D11 HD36, Ireland

Joule UK
Unit 3 Leftfield Park, Park Road,
Pontefract, WF8 4PS, UK

Product information Telephone number: 01 623 7080 (Irl)
Telephone number: 0330 808 8488 (UK)

1.4. Emergency telephone number

Health Emergency

National Poisons Information Service (24h service) : 0844-892-0111 (UK only)
National Poisons Information Centre : 01 8092166 (Ireland only)
General Emergency: 112 or 999 SDS/Product information may not be available for the emergency services.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended

This mixture does not meet the criteria for classification according to Regulation (EC) 1272/2008 as amended.

Hazard summary Low hazard for usual industrial or commercial handling by trained personnel.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Hazard pictograms None.

Signal word None.

Hazard statements The mixture does not meet the criteria for classification.

Precautionary statements

Prevention Not assigned.

Response Not assigned.

Storage Not assigned.

Disposal Not assigned.

Supplemental label information None.

2.3. Other hazards

Not a PBT or vPvB substance or mixture.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Propane-1,2-diol	35 - 40	57-55-6 200-338-0	01-2119456809-23-XXXX	-	
Classification: N/a	-				

List of abbreviations and symbols that may be used above

#: This substance has been assigned Union workplace exposure limit(s).

Composition comments All concentrations are in percent by weight.

SECTION 4: First aid measures

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

4.1. Description of first aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact Remove contact lenses, if present and easy to do.

Ingestion Rinse mouth. Get medical attention if symptoms occur.

4.2. Most important symptoms and effects, both acute and delayed Exposure may cause temporary irritation, redness, or discomfort.

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

SECTION 5: Firefighting measures

General fire hazards No unusual fire or explosion hazards noted.

5.1. Extinguishing media

Suitable extinguishing media Alcohol resistant foam. Powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture Thermal decomposition may produce smoke, oxides of carbon and lower molecular weight organic compounds whose composition have not been characterised.

5.3. Advice for firefighters

Special protective equipment for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Special fire fighting procedures Move containers from fire area if you can do so without risk.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Keep unnecessary personnel away.

For emergency responders Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

Use water spray to reduce vapours or divert vapour cloud drift.

6.3. Methods and material for containment and cleaning up Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use.

6.4. Reference to other sections For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling	Observe good industrial hygiene practices.
7.2. Conditions for safe storage, including any incompatibilities	Store in original tightly closed container. Store away from incompatible materials (see section 10 of the SDS).
7.3. Specific end use(s)	Solar Heat Transfer Fluid.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value	Form
Propane-1,2-diol (CAS 57-55-6)	TWA	474 mg/m ³	Total vapour and particulates.
		10 mg/m ³	Particulate.
		150 ppm	Total vapour and particulates.

Biological limit values No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no effect levels (DNELs)

General Population

Components	Value	Assessment factor	Notes
Propane-1,2-diol (CAS 57-55-6)	10 mg/m ³	15	Repeated dose toxicity
	50 mg/m ³	5	

Workers

Components	Value	Assessment factor	Notes
Propane-1,2-diol (CAS 57-55-6)	10 mg/m ³	9	Repeated dose toxicity
	168 mg/m ³	3	

Predicted no effect concentrations (PNECs)

Components	Value	Assessment factor	Notes
Propane-1,2-diol (CAS 57-55-6)	260 mg/l	50	Repeated dose toxicity
	183 mg/l		
	26 mg/l	500	Repeated dose toxicity
	572 mg/kg		
	57.2 mg/kg		Repeated dose toxicity
	50 mg/kg		

8.2. Exposure controls

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

General information	Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.
Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin protection	
- Hand protection	Not normally needed. Wear suitable protective clothing as protection against splashing or contamination.
- Other	Wear suitable protective clothing.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
Hygiene measures	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Environmental exposure controls Environmental manager must be informed of all major releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state	Liquid.
Form	Liquid.
Colour	Green.
Odour	Mild.
Odour threshold	Not determined.
pH	7.5 – 9.5 (20°C) (Typical)
Melting point/freezing point	Not applicable. / Not determined.
Initial boiling point and boiling range	164 °C (327.2 °F) (Typical)
Flash point	103.0 °C (217.4 °F) Pensky-Martens Closed Cup (Approximate)
Evaporation rate	Not determined.
Flammability (solid, gas)	Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not determined.
Flammability limit - upper (%)	Not determined.
Vapour pressure	Not determined.
Vapour density	Not determined.
Relative density	Not determined.
Solubility(ies)	Miscible.
Partition coefficient (n-octanol/water)	Not determined.
Auto-ignition temperature	Not determined.
Decomposition temperature	Not determined.
Viscosity	Not determined.
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.
9.2. Other information	
Density	1.051 kg/l (20 °C) (Typical)

SECTION 10: Stability and reactivity

10.1. Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
10.2. Chemical stability	Material is stable under normal conditions.
10.3. Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
10.4. Conditions to avoid	Contact with incompatible materials.
10.5. Incompatible materials	Strong acids. Nitrates. Peroxides. Chlorates.
10.6. Hazardous decomposition products	At elevated temperatures: Ketones. Aldehydes.

SECTION 11: Toxicological information

General information	Occupational exposure to the substance or mixture may cause adverse effects.
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Information on likely routes of exposure

Inhalation	In high concentrations, mists/vapours may irritate throat and respiratory system and cause coughing.
Skin contact	Prolonged or repeated contact may dry skin and cause irritation.
Eye contact	Direct contact with eyes may cause temporary irritation.

Ingestion Ingestion of ethylene glycol may result in nausea, vomiting, abdominal cramps, blindness, liver damage, irritation, reproductive effects, nerve damage, convulsions, oedema of the lung, cardiopulmonary effects (metabolic acidosis), pneumonia and kidney failure which could result in death. The single lethal dose for humans is about 100 ml. Inhalation of high levels of vapour or mists for prolonged periods of time may also result in toxic effects.

Symptoms Exposure may cause temporary irritation, redness, or discomfort.

11.1. Information on toxicological effects

Acute toxicity

Product	Species	Test Results
Joule Sol-Fluid-20 (Mixture)		

Acute

Oral

LD50

> 20000 mg/kg

Components	Species	Test Results
Propane-1,2-diol (CAS 57-55-6)		

Acute

Dermal

LD50

Rabbit

20800 mg/kg

Oral

LD50

Rat

20000 mg/kg

Skin corrosion/irritation

Serious eye damage/eye irritation

Respiratory sensitisation

Skin sensitisation

Germ cell mutagenicity

Carcinogenicity

Reproductive toxicity

Specific target organ toxicity - single exposure

Specific target organ toxicity - repeated exposure

Aspiration hazard

Mixture versus substance information

Other information

Based on available data, the classification criteria are not met.

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Due to partial or complete lack of data the classification is not possible.

No information available.

No data available.

SECTION 12: Ecological information

12.1. Toxicity

Based on available data, the classification criteria are not met for hazardous to the aquatic environment.

Components	Species	Test Results
Propane-1,2-diol (CAS 57-55-6)		

Aquatic

Algae

EC50

Pseudokirchneriella subcapitata

19000 mg/l, 96 Hours

Crustacea

EC50

Daphnia magna

> 10000 mg/l, 48 Hours

Fish

LC50

Fathead minnow (Pimephales promelas)

710 - 55770 mg/l, 96 Hours

12.2. Persistence and degradability

Expected to be readily biodegradable.

12.3. Bioaccumulative potential

No data available.

Partition coefficient

n-octanol/water (log Kow)

Propane-1,2-diol (CAS 57-55-6) -0.92

Bioconcentration factor (BCF)

Not available.

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

Not a PBT or vPvB substance or mixture.

12.6. Other adverse effects

No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
EU waste code	EWC: 16 01 14
Disposal methods/information	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
Special precautions	Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. - 14.6.: Not regulated as dangerous goods.

RID

14.1. - 14.6.: Not regulated as dangerous goods.

ADN

14.1. - 14.6.: Not regulated as dangerous goods.

IATA

14.1. - 14.6.: Not regulated as dangerous goods.

IMDG

14.1. - 14.6.: Not regulated as dangerous goods.

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

SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorisation, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Not listed.

Other regulations	The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.
	All components of this product are compliant with the registration requirements of Regulation (EC) 1907/2006 on the Registration, Evaluation, Authorization and Restriction of Chemicals, as amended.
	All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), KECL (Korea), PICCS (Philippines), TSCA (United States), TCSI (Taiwan), NZIoC (New Zealand).
National regulations	This product is not classified according to current European Union regulations. Follow national regulation for work with chemical agents.

15.2. Chemical safety assessment

SECTION 16: Other information

List of abbreviations

TWA: Time weighted average.
 DNEL: Derived No-Effect Level.
 PNEC: Predicted No-Effect Concentration.
 STP: Sewage treatment plant.
 LD50: Lethal Dose, 50%.
 EC50: Effective Concentration, 50%.
 LC50: Lethal Concentration, 50%.
 PBT: Persistent, bioaccumulative and toxic.
 vPvB: Very Persistent and very Bioaccumulative.

References

Information on evaluation method leading to the classification of mixture

ECHA CHEM

The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

Full text of any H-statements not written out in full under Sections 2 to 15

None.

This SDS contains revisions in the following section(s):

11,13,14,

Training information

Follow training instructions when handling this material.

Disclaimer

Joule cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.