Copaslip

High temperature anti-seize compound

MOL-13001

MOL-13005

MOL-13004

Description

COPASLIP is a high performance compound specifically formulated to protect fasteners from seizure induced by extremes of temperature, pressure and corrosion. The semi-synthetic base fluid is reinforced with anti-oxidants, corrosion inhibitors and ultra pure copper particles to provide outstanding protection to threads and components.

COPASLIP minimises variations in frictional interference between threads allowing accurate, consistent assembly. It also prevents galling and seizure during assembly and dismantling – even after long periods of exposure to high temperatures, corrosive environments or high pressure.

Features and benefits

- Ensures consistent friction between threads
- Protects against galling and seizure
- Protects against rust and corrosion
- Eases assembly of tight tolerance components
- Withstands extreme temperature

Instructions for use

COPASLIP should be used as supplied. Ensure surfaces to be treated are clean and dry - free from oil, grease or dirt contamination. Apply a thin even coating by rubbing onto the surface with a lint free cloth or brush.

Packaging

100g tubes, 400ml aerosol, 500g tin, 5kg and 20kg pails

Technical data (typical values)

Property	Result
Consistency	NLGI 1
Base oil viscosity	100 cSt
Drop point	>300°C (non-melting)
Flash point (IP34)	>200°C
Effective temperature range	-40°C up to +1100°C
Solidification point (of the base fluid)	-20°C
Coefficient of friction (steel on steel, steady state)	0.12

When a compound is applied to a threaded fastener that will be tightened to a specific torque setting, the torque setting will require adjustment to allow for the lubricating effect of the compound. Failure to do so can result in incorrect tension in the fastener. Correct torque settings can be calculated using the tables and charts below and the standard thread equation:

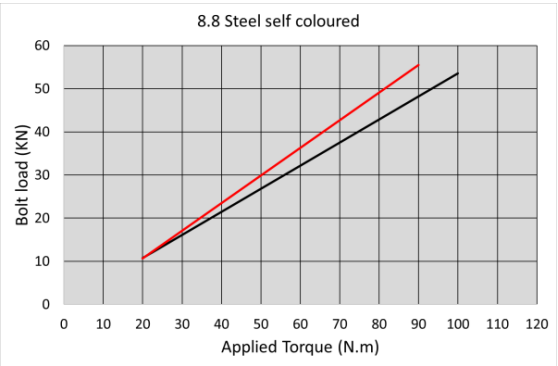
$$T = KDP$$

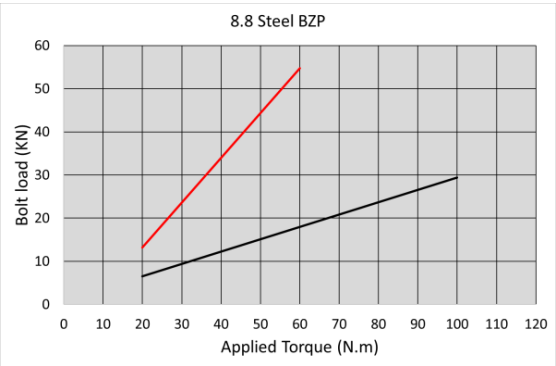
T = Torque (N.m)
D = Diameter (m)
P = Clamping force (N)
K = Nut factor

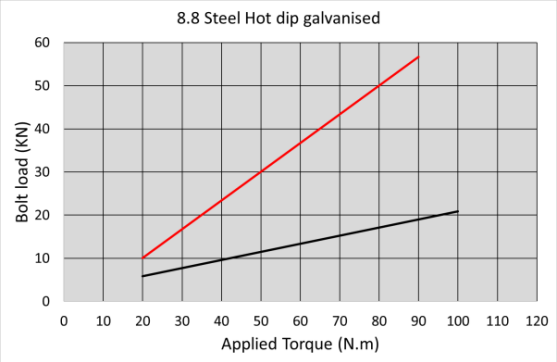
Material	K Nut factor
8.8 Steel self coloured	0.14
8.8 Steel BZP	0.10
8.8 Steel Hot dip galvanised	0.14
A2 Stainless steel	0.13
Brass	0.12

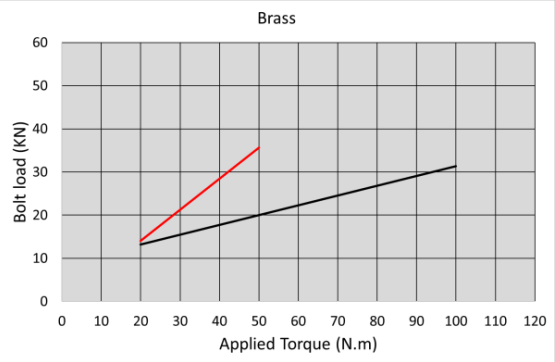
These results were obtained from the tension-torsion relationship measured on M12 x 50mm setscrews with 1.75mm thread pitch, full nut and form A washers. Fasteners were degreased and a thin layer of compound applied to the thread, underside of bolt head and top of the nut.

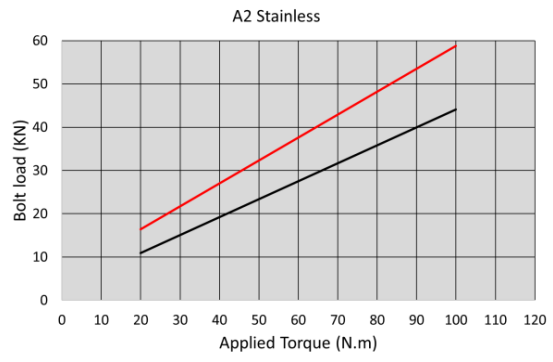
Copaslip











Black = Degreased fastener
Red = COPASLIP

The product information in this publication is based on knowledge and experience at the time of printing. There are many factors outside our control or knowledge which affect the use and performance of our products, for which reason it is given without responsibility.
Issue date 06-17

Safety Data Sheet Copaslip

According to Regulation (EC) No 1907/2006, Annex II, as amended. Commission Regulation (EU) No 2015/830 of 28 May 2015.

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

1.1. Product identifier

Product name Molyslip Copaslip

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

Identified uses Anti-seize compound

Uses advised against No specific uses advised against are identified.

1.3. Details of the supplier of the safety data sheet

Supplier

Molyslip
4 Huntsman Drive
Northbank Industrial Park
Irlam
Manchester
M44 5EG
UK
+44 (0)161 804 4700
+44 (0)161 804 4701
compliance@molyslip.co.uk

1.4. Emergency telephone number

Emergency telephone +44 (0)161 804 4700 (8am to 4pm)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards Not Classified

Health hazards Not Classified

Environmental hazards Aquatic Acute 1 - H400 Aquatic Chronic 2 - H411

2.2. Label elements

Pictogram

Signal word Warning

Hazard statements H400 Very toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements	P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P304+P340 IF INHALED: Remove person to fresh air and keep 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.
Supplementary precautionary statements	P261 Avoid breathing dust. P264 Wash contaminated skin thoroughly after handling. P271 Use only outdoors or in a well-ventilated area. P273 Avoid release to the environment. P312 Call a POISON CENTRE/doctor if you feel unwell. P337+P313 If eye irritation persists: Get medical advice/ attention. P391 Collect spillage. P501 Dispose of contents/ container in accordance with national regulations.

2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Distillates (petroleum), hydrotreated heavy paraffinic <3% **30-60%**
DMSO

CAS number: 64742-54-7 | EC number: 265-157-1 | REACH registration number: 01-2119484327-25-XXXX

Classification
Not Classified

Talc (Mg3H2(SiO3)4) **10-30%**

CAS number: 14807-96-6 | EC number: 238-877-9

This product is exempted from pre-registration and registration in accordance with Annex V.7

Classification
Not Classified

Copper **5-10%**

CAS number: 7440-50-8 | EC number: 231-159-6 | REACH registration number: 01-2119480154-42-XXXX

M factor (Acute) = 10 | M factor (Chronic) = 1

Classification
Acute Tox. 4 - H302
Acute Tox. 3 - H331
Eye Irrit. 2 - H319
Aquatic Acute 1 - H400
Aquatic Chronic 1 - H410

Classification
Not Classified

diphenylamine		**<1%**
CAS number: 122-39-4	EC number: 204-539-4	REACH registration number: 01-2119488966-13-XXXX
M factor (Acute) = 1	M factor (Chronic) = 1	

Classification
Acute Tox. 3 - H301
Acute Tox. 3 - H311
Acute Tox. 3 - H331
STOT RE 2 - H373
Aquatic Acute 1 - H400
Aquatic Chronic 1 - H410

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information If in doubt, get medical attention promptly. Show this Safety Data Sheet to the medical personnel.

Inhalation Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Loosen tight clothing such as collar, tie or belt. Get medical attention if symptoms are severe or persist.

Ingestion Rinse mouth thoroughly with water. Get medical advice/attention if you feel unwell. Do not induce vomiting unless under the direction of medical personnel.

Skin contact Rinse with water.

Eye contact Remove any contact lenses and open eyelids wide apart. Rinse with water. Get medical attention if any discomfort continues.

Protection of first aiders First aid personnel should wear appropriate protective equipment during any rescue.

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

General information The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

Inhalation No specific symptoms known.

Ingestion No specific symptoms known.

Skin contact Prolonged contact may cause dryness of the skin.

Eye contact No specific symptoms known. May be slightly irritating to eyes.

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

Notes for the doctor Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media The product is not flammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.

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

Specific hazards None known.

Hazardous combustion products Thermal decomposition or combustion products may include the following substances: Harmful gases or vapours.

5.3. Advice for firefighters

Protective actions during firefighting Avoid breathing fire gases or vapours. Evacuate area. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. Avoid discharge to the aquatic environment. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing conforming to European standard EN469 (including helmets, protective boots and gloves) will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing as described in Section 8 of this safety data sheet. No action shall be taken without appropriate training or involving any personal risk. Do not touch or walk into spilled material.

6.2. Environmental precautions

Environmental precautions Avoid discharge into drains or watercourses or onto the ground. Avoid discharge to the aquatic environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. Collect spillage with a shovel and broom, or similar and reuse, if possible. Collect and place in suitable waste disposal containers and seal securely. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. Dangerous for the environment. Do not empty into drains. For waste disposal, see Section 13.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions	Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink and animal feeding stuffs. Keep container tightly sealed when not in use. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. Do not reuse empty containers.
Advice on general occupational hygiene	Wash promptly if skin becomes contaminated. Take off contaminated clothing. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions	Store away from incompatible materials (see Section 10). Keep only in the original container. Keep container tightly closed, in a cool, well ventilated place. Keep containers upright. Protect containers from damage.
Storage class	Miscellaneous hazardous material storage.

7.3. Specific end use(s)

Specific end use(s)	The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

Distillates (petroleum), hydrotreated heavy paraffinic <3% DMSO

Long-term exposure limit (8-hour TWA): WEL 5 mg/m³ inhalable dust
Long-term exposure limit (8-hour TWA): WEL 5 mg/m³ mist

Talc (Mg3H2(SiO3)4)

Long-term exposure limit (8-hour TWA): WEL 1 mg/m³ respirable dust

Copper

Long-term exposure limit (8-hour TWA): WEL 1 mg/m³ - - respirable dust
Short-term exposure limit (15-minute): WEL 2 mg/m³ - - respirable dust

Polyisobutylene in mineral oil

Long-term exposure limit (8-hour TWA): WEL 5 mg/m³
Short-term exposure limit (15-minute): WEL 10 mg/m³

diphenylamine

Long-term exposure limit (8-hour TWA): WEL 10 mg/m³
Short-term exposure limit (15-minute): WEL 20 mg/m³
WEL = Workplace Exposure Limit

Distillates (petroleum), hydrotreated heavy paraffinic <3% DMSO (CAS: 64742-54-7)

DNEL	Workers - Inhalation; Long term local effects: 5.4 mg/m³

Copper (CAS: 7440-50-8)

DNEL	Workers - Dermal; Short term systemic effects: 273 mg/kg Workers - Inhalation; Short term systemic effects: 20 mg/m³ Workers - Dermal; Long term systemic effects: 137 mg/kg

PNEC	- Soil; 65.5 mg/kg - Sediment (Freshwater); 87 mg/kg - Fresh water; 0.0078 mg/l - Marine water; 0.0052 mg/l - Sediment (Marinewater); 676 mg/kg - STP; 0.230 mg/l

Chlorinated paraffin C18-30 (CAS: 63449-39-8)

DNEL	Industry - Inhalation; Long term systemic effects: 2.35 mg/m³ Industry - Dermal; Long term systemic effects: 20 mg/kg/day
PNEC	- Fresh water; 0.0055 mg/l - Marine water; 0.0011 mg/l - STP; 60 mg/l

propylene carbonate (CAS: 108-32-7)

DNEL	Industry - Inhalation; Long term systemic effects: 50 mg/kg/day Industry - Inhalation; Long term local effects: 20 mg/m³ Industry - Dermal; Long term systemic effects: 50 mg/kg/day
PNEC	- Fresh water; 0.9 mg/l - Marine water; 0.09 mg/l - STP; 7.4E3 mg/l - Soil; 0.81 mg/kg

8.2. Exposure controls

Protective equipment

Appropriate engineering controls	Provide adequate ventilation. Observe any occupational exposure limits for the product or ingredients.
Eye/face protection	Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Tight-fitting safety glasses.
Hand protection	No specific hand protection recommended. Avoid contact with skin.
Other skin and body protection	Wear appropriate clothing to prevent repeated or prolonged skin contact.
Hygiene measures	Wash after use and before eating, smoking and using the toilet. Do not eat, drink or smoke when using this product.
Respiratory protection	Ensure all respiratory protective equipment is suitable for its intended use and is 'CE'-marked. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges should comply with European Standard EN14387. Full face mask respirators with replaceable filter cartridges should comply with European Standard EN136. Half mask and quarter mask respirators with replaceable filter cartridges should comply with European Standard EN140.
Environmental exposure controls	Keep container tightly sealed when not in use. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Coloured paste.
Colour	Yellow. to Gold.
Odour	Characteristic.
Flash point	> 200°C Cleveland open cup.
Relative density	~ 1.13 @ 20°C
Solubility(ies)	Insoluble in water.

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	See the other subsections of this section for further details.

10.2. Chemical stability

Stability	Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	No potentially hazardous reactions known.

10.4. Conditions to avoid

Conditions to avoid	There are no known conditions that are likely to result in a hazardous situation.

10.5. Incompatible materials

Materials to avoid	No specific material or group of materials is likely to react with the product to produce a hazardous situation.

10.6. Hazardous decomposition products

Hazardous decomposition products	Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Harmful gases or vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Notes (oral LD_{50})	Based on available data the classification criteria are not met.
ATE oral (mg/kg)	5,025.13

Acute toxicity - dermal

Notes (dermal LD_{50})	Based on available data the classification criteria are not met.

Acute toxicity - inhalation

Notes (inhalation LC_{50})	Based on available data the classification criteria are not met.
ATE inhalation (dusts/mists mg/l)	5.03

Skin corrosion/irritation

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

Serious eye damage/irritation

Serious eye damage/irritation	Based on available data the classification criteria are not met.

Respiratory sensitisation

Respiratory sensitisation	Based on available data the classification criteria are not met.

Skin sensitisation

Skin sensitisation	Based on available data the classification criteria are not met.

Germ cell mutagenicity

Genotoxicity - in vitro	Based on available data the classification criteria are not met.

Carcinogenicity

Carcinogenicity	Based on available data the classification criteria are not met.
IARC carcinogenicity	None of the ingredients are listed or exempt.

Reproductive toxicity

Reproductive toxicity - fertility	Based on available data the classification criteria are not met.
Reproductive toxicity - development	Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

STOT - single exposure	Not classified as a specific target organ toxicant after a single exposure.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure	Not classified as a specific target organ toxicant after repeated exposure.

Aspiration hazard

Aspiration hazard	Not relevant. Solid.

General information	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
Inhalation	No specific symptoms known.
Ingestion	No specific symptoms known.
Skin contact	Prolonged contact may cause dryness of the skin.
Eye contact	No specific symptoms known.
Route of exposure	Ingestion Inhalation Skin and/or eye contact
Target organs	No specific target organs known.

SECTION 12: Ecological Information

12.1. Toxicity

Toxicity	Aquatic Acute 1 - H400 Very toxic to aquatic life. Aquatic Chronic 2 - H411 Toxic to aquatic life with long lasting effects.

12.2. Persistence and degradability

Persistence and degradability	The degradability of the product is not known.

12.3. Bioaccumulative potential

Bioaccumulative potential	No data available on bioaccumulation.

12.4. Mobility in soil

Mobility	No data available.

12.5. Results of PBT and vPvB assessment

12.6. Other adverse effects

Other adverse effects	None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information	The generation of waste should be minimised or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues and hence be potentially hazardous.
Disposal methods	Do not empty into drains. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labelled with their contents. Incineration or landfill should only be considered when recycling is not feasible.

SECTION 14: Transport information

General	For limited quantity packaging/limited load information, consult the relevant modal documentation using the data shown in this section.

14.1. UN number

UN No. (ADR/RID)	3077
UN No. (IMDG)	3077
UN No. (ICAO)	3077
UN No. (ADN)	3077

14.2. UN proper shipping name

Proper shipping name (ADR/RID)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CONTAINS Copper, diphenylamine)
Proper shipping name (IMDG)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CONTAINS Copper, diphenylamine)
Proper shipping name (ICAO)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CONTAINS Copper, diphenylamine)
Proper shipping name (ADN)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CONTAINS Copper, diphenylamine)

14.3. Transport hazard class(es)

ADR/RID class	9
ADR/RID classification code	M7
ADR/RID label	9
IMDG class	9
ICAO class/division	9
ADN class	9

Transport labels

14.4. Packing group

ADR/RID packing group	III
IMDG packing group	III
ADN packing group	III
ICAO packing group	III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

14.6. Special precautions for user

Always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

EmS	F-A, S-F
ADR transport category	3
Emergency Action Code	2Z
Hazard Identification Number (ADR/RID)	90
Tunnel restriction code	(-)

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

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

SECTION 15: Regulatory information

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

National regulations	Health and Safety at Work etc. Act 1974 (as amended). The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No. 1348) (as amended) ["CDG 2009"]. EH40/2005 Workplace exposure limits.
EU legislation	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) (as amended). Commission Regulation (EU) No 2015/830 of 28 May 2015. Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

Inventories

EU - EINECS/ELINCS

None of the ingredients are listed or exempt.

SECTION 16: Other information

Abbreviations and acronyms used in the safety data sheet	ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road. ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways. RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail. IATA: International Air Transport Association. ICAO: Technical Instructions for the Safe Transport of Dangerous Goods by Air. IMDG: International Maritime Dangerous Goods. CAS: Chemical Abstracts Service. ATE: Acute Toxicity Estimate. LC_{50}: Lethal Concentration to 50 % of a test population. LD_{50}: Lethal Dose to 50% of a test population (Median Lethal Dose). EC_{50}: 50% of maximal Effective Concentration. PBT: Persistent, Bioaccumulative and Toxic substance. vPvB: Very Persistent and Very Bioaccumulative.
Classification abbreviations and acronyms	Aquatic Acute = Hazardous to the aquatic environment (acute) Aquatic Chronic = Hazardous to the aquatic environment (chronic)
Classification procedures according to Regulation (EC) 1272/2008	Aquatic Acute 1 - H400: Aquatic Chronic 2 - H411: : Calculation method.
Training advice	Only trained personnel should use this material.
Revision date	25/06/2018
Revision	6
Supersedes date	06/04/2018
SDS number	5084
Hazard statements in full	H301 Toxic if swallowed. H302 Harmful if swallowed. H311 Toxic in contact with skin. H319 Causes serious eye irritation. H331 Toxic if inhaled. H373 May cause damage to organs through prolonged or repeated exposure. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects. H411 Toxic to aquatic life with long lasting effects.

Safety Data Sheet Copaslip

According to Regulation (EC) No 1907/2006, Annex II, as amended. Commission Regulation (EU) No 2015/830 of 28 May 2015.

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

1.1. Product identifier

Product name Molyslip Copaslip Spray

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

Identified uses Anti-seize compound

Uses advised against No specific uses advised against are identified.

1.3. Details of the supplier of the safety data sheet

Supplier

Molyslip
4 Huntsman Drive
Northbank Industrial Park
Irlam
Manchester
M44 5EG
UK
+44 (0)161 804 4700
+44 (0)161 804 4701
compliance@molyslip.co.uk

1.4. Emergency telephone number

Emergency telephone +44 (0)161 804 4700

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards Aerosol 1 - H222, H229

Health hazards Skin Irrit. 2 - H315 STOT SE 3 - H336

Environmental hazards Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410

Physicochemical The product is highly flammable. Containers can burst violently or explode when heated, due to excessive pressure build-up. When sprayed on a naked flame or any incandescent material the aerosol vapours can be ignited.

2.2. Label elements

Pictogram

Signal word Danger

Hazard statements	H222 Extremely flammable aerosol. H229 Pressurised container: may burst if heated. H315 Causes skin irritation. H336 May cause drowsiness or dizziness. H410 Very toxic to aquatic life with long lasting effects.
Precautionary statements	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P251 Do not pierce or burn, even after use. P273 Avoid release to the environment. P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F. P501 Dispose of contents/ container in accordance with national regulations.
Contains	n-heptane
Supplementary precautionary statements	P211 Do not spray on an open flame or other ignition source. P261 Avoid breathing spray. P264 Wash contaminated skin thoroughly after handling. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P302+P352 IF ON SKIN: Wash with plenty of water. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P312 Call a POISON CENTRE/doctor if you feel unwell. P321 Specific treatment (see medical advice on this label). P332+P313 If skin irritation occurs: Get medical advice/ attention. P362+P364 Take off contaminated clothing and wash it before reuse. P391 Collect spillage. P403+P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up.

2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

n-heptane **30-60%**

CAS number: 142-82-5	EC number: 205-563-8	REACH registration number: 01-2119475515-33-XXXX
M factor (Acute) = 1	M factor (Chronic) = 1	

Classification

Flam. Liq. 2 - H225
Skin Irrit. 2 - H315
STOT SE 3 - H336
Asp. Tox. 1 - H304
Aquatic Acute 1 - H400
Aquatic Chronic 1 - H410

Distillates (petroleum), hydrotreated heavy paraffinic <3% **10-30%**
DMSO

CAS number: 64742-54-7 EC number: 265-157-1 REACH registration number: 01-2119484327-25-XXXX

Classification
Not Classified

Petroleum gases, liquefied **10-30%**

CAS number: 68476-85-7 EC number: 270-704-2

This product is exempted from pre-registration and registration in accordance with Annex V

Classification
Flam. Gas 1 - H220
Press. Gas (Liq.) - H280

Talc (Mg3H2(SiO3)4) **5-10%**

CAS number: 14807-96-6 EC number: 238-877-9

This product is exempted from pre-registration and registration in accordance with Annex V.7

Classification
Not Classified

Copper **1-5%**

CAS number: 7440-50-8 EC number: 231-159-6 REACH registration number: 01-2119480154-42-XXXX

M factor (Acute) = 10 M factor (Chronic) = 1

Classification
Acute Tox. 4 - H302
Acute Tox. 3 - H331
Eye Irrit. 2 - H319
Aquatic Acute 1 - H400
Aquatic Chronic 1 - H410

Polyisobutylene in mineral oil **<1%**

CAS number: —

This product is a polymer as defined in Art. 3 (5) of the Reach regulation and is exempt from pre-registration and registration.

Classification
Not Classified

diphenylamine		**<1%**
CAS number: 122-39-4	EC number: 204-539-4	REACH registration number: 01-2119488966-13-XXXX
M factor (Acute) = 1	M factor (Chronic) = 1	

Classification
Acute Tox. 3 - H301
Acute Tox. 3 - H311
Acute Tox. 3 - H331
STOT RE 2 - H373
Aquatic Acute 1 - H400
Aquatic Chronic 1 - H410

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information If in doubt, get medical attention promptly. Show this Safety Data Sheet to the medical personnel.

Inhalation Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Loosen tight clothing such as collar, tie or belt. Get medical attention if symptoms are severe or persist.

Ingestion Rinse mouth thoroughly with water. Get medical advice/attention if you feel unwell. Do not induce vomiting unless under the direction of medical personnel.

Skin contact Rinse with water.

Eye contact Remove any contact lenses and open eyelids wide apart. Rinse with water. Get medical attention if any discomfort continues.

Protection of first aiders First aid personnel should wear appropriate protective equipment during any rescue.

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

General information The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

Inhalation No specific symptoms known.

Ingestion No specific symptoms known.

Skin contact Prolonged contact may cause dryness of the skin.

Eye contact No specific symptoms known. May be slightly irritating to eyes.

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

Notes for the doctor Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media The product is not flammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.

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

Specific hazards None known.

Hazardous combustion products Thermal decomposition or combustion products may include the following substances: Harmful gases or vapours.

5.3. Advice for firefighters

Protective actions during firefighting Avoid breathing fire gases or vapours. Evacuate area. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. Avoid discharge to the aquatic environment. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing conforming to European standard EN469 (including helmets, protective boots and gloves) will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing as described in Section 8 of this safety data sheet. No action shall be taken without appropriate training or involving any personal risk. Do not touch or walk into spilled material.

6.2. Environmental precautions

Environmental precautions Avoid discharge into drains or watercourses or onto the ground. Avoid discharge to the aquatic environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. Collect spillage with a shovel and broom, or similar and reuse, if possible. Collect and place in suitable waste disposal containers and seal securely. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. Dangerous for the environment. Do not empty into drains. For waste disposal, see Section 13.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink and animal feeding stuffs. Keep container tightly sealed when not in use. Avoid discharge to the aquatic environment. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. Do not reuse empty containers.

Advice on general occupational hygiene Wash promptly if skin becomes contaminated. Take off contaminated clothing. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store away from incompatible materials (see Section 10). Keep only in the original container. Keep container tightly closed, in a cool, well ventilated place. Keep containers upright. Protect containers from damage.

Storage class Miscellaneous hazardous material storage.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

n-heptane

Long-term exposure limit (8-hour TWA): WEL 500

Distillates (petroleum), hydrotreated heavy paraffinic <3% DMSO

Long-term exposure limit (8-hour TWA): WEL 5 mg/m³ inhalable dust
Long-term exposure limit (8-hour TWA): WEL 5 mg/m³ mist

Petroleum gases, liquefied

Long-term exposure limit (8-hour TWA): WEL 1750 mg/m³ respirable dust
Short-term exposure limit (15-minute): WEL 2180 mg/m³ respirable dust

Talc (Mg3H2(SiO3)4)

Long-term exposure limit (8-hour TWA): WEL 1 mg/m³ respirable dust

Copper

Long-term exposure limit (8-hour TWA): WEL 1 mg/m³ - - respirable dust
Short-term exposure limit (15-minute): WEL 2 mg/m³ - - respirable dust

Polyisobutylene in mineral oil

Long-term exposure limit (8-hour TWA): WEL 5 mg/m³
Short-term exposure limit (15-minute): WEL 10 mg/m³

diphenylamine

Long-term exposure limit (8-hour TWA): WEL 10 mg/m³
Short-term exposure limit (15-minute): WEL 20 mg/m³
WEL = Workplace Exposure Limit

n-heptane (CAS: 142-82-5)

DNEL
Workers - Dermal; systemic effects: 300 mg/kg/day
Workers - Inhalation; systemic effects: 2085 mg/m³

PNEC
- Fresh water; 0.03 mg/l
- Marine water; 0.03 mg/l
- Sediment (Freshwater); 4.4 mg/kg
- Sediment (Marinewater); 4.4 mg/kg
- Soil; 1.8 mg/kg

Distillates (petroleum), hydrotreated heavy paraffinic <3% DMSO (CAS: 64742-54-7)

DNEL
Workers - Inhalation; Long term local effects: 5.4 mg/m³

Copper (CAS: 7440-50-8)

DNEL
Workers - Dermal; Short term systemic effects: 273 mg/kg
Workers - Inhalation; Short term systemic effects: 20 mg/m³
Workers - Dermal; Long term systemic effects: 137 mg/kg

PNEC	- Soil; 65.5 mg/kg - Sediment (Freshwater); 87 mg/kg - Fresh water; 0.0078 mg/l - Marine water; 0.0052 mg/l - Sediment (Marinewater); 676 mg/kg - STP; 0.230 mg/l

Chlorinated paraffin C18-30 (CAS: 63449-39-8)

DNEL	Industry - Inhalation; Long term systemic effects: 2.35 mg/m³ Industry - Dermal; Long term systemic effects: 20 mg/kg/day
PNEC	- Fresh water; 0.0055 mg/l - Marine water; 0.0011 mg/l - STP; 60 mg/l

propylene carbonate (CAS: 108-32-7)

DNEL	Industry - Inhalation; Long term systemic effects: 50 mg/kg/day Industry - Inhalation; Long term local effects: 20 mg/m³ Industry - Dermal; Long term systemic effects: 50 mg/kg/day
PNEC	- Fresh water; 0.9 mg/l - Marine water; 0.09 mg/l - STP; 7.4E3 mg/l - Soil; 0.81 mg/kg

8.2. Exposure controls

Protective equipment

Appropriate engineering controls	Provide adequate ventilation. Observe any occupational exposure limits for the product or ingredients.
Eye/face protection	Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Tight-fitting safety glasses.
Hand protection	No specific hand protection recommended. Avoid contact with skin.
Other skin and body protection	Wear appropriate clothing to prevent repeated or prolonged skin contact.
Hygiene measures	Wash after use and before eating, smoking and using the toilet. Do not eat, drink or smoke when using this product.
Respiratory protection	Ensure all respiratory protective equipment is suitable for its intended use and is 'CE'-marked. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges should comply with European Standard EN14387. Full face mask respirators with replaceable filter cartridges should comply with European Standard EN136. Half mask and quarter mask respirators with replaceable filter cartridges should comply with European Standard EN140.
Environmental exposure controls	Keep container tightly sealed when not in use. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Aerosol.
Colour	Yellow. to Gold.
Odour	Characteristic.
Flash point	< -60°C Cleveland open cup.
Relative density	~ 1.13 @ 20°C
Solubility(ies)	Insoluble in water.

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	See the other subsections of this section for further details.

10.2. Chemical stability

Stability	Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	No potentially hazardous reactions known.

10.4. Conditions to avoid

Conditions to avoid	There are no known conditions that are likely to result in a hazardous situation.

10.5. Incompatible materials

Materials to avoid	No specific material or group of materials is likely to react with the product to produce a hazardous situation.

10.6. Hazardous decomposition products

Hazardous decomposition products	Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Harmful gases or vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Notes (oral LD_{50})	Based on available data the classification criteria are not met.
ATE oral (mg/kg)	12,137.98

Acute toxicity - dermal

Notes (dermal LD_{50})	Based on available data the classification criteria are not met.

Acute toxicity - inhalation

Notes (inhalation LC_{50})	Based on available data the classification criteria are not met.
ATE inhalation (dusts/mists mg/l)	12.14

Skin corrosion/irritation

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

Serious eye damage/irritation

Serious eye damage/irritation	Based on available data the classification criteria are not met.

Respiratory sensitisation

Respiratory sensitisation	Based on available data the classification criteria are not met.

Skin sensitisation

Skin sensitisation	Based on available data the classification criteria are not met.

Germ cell mutagenicity

Genotoxicity - in vitro	Based on available data the classification criteria are not met.

Carcinogenicity

Carcinogenicity	Based on available data the classification criteria are not met.
IARC carcinogenicity	None of the ingredients are listed or exempt.

Reproductive toxicity

Reproductive toxicity - fertility	Based on available data the classification criteria are not met.
Reproductive toxicity - development	Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

STOT - single exposure	Not classified as a specific target organ toxicant after a single exposure.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure	Not classified as a specific target organ toxicant after repeated exposure.

Aspiration hazard

Aspiration hazard	Not relevant. Solid.

General information	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
Inhalation	No specific symptoms known.
Ingestion	No specific symptoms known.
Skin contact	Prolonged contact may cause dryness of the skin.
Eye contact	No specific symptoms known.
Route of exposure	Ingestion Inhalation Skin and/or eye contact
Target organs	No specific target organs known.

SECTION 12: Ecological Information

12.1. Toxicity

Toxicity	Aquatic Acute 1 - H400 Very toxic to aquatic life. Aquatic Chronic 3 - H412 Harmful to aquatic life with long lasting effects.

12.2. Persistence and degradability

Persistence and degradability	The degradability of the product is not known.

12.3. Bioaccumulative potential

Bioaccumulative potential	No data available on bioaccumulation.

12.4. Mobility in soil

Mobility	No data available.

12.5. Results of PBT and vPvB assessment

12.6. Other adverse effects

Other adverse effects	None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information	The generation of waste should be minimised or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues and hence be potentially hazardous.
Disposal methods	Do not empty into drains. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labelled with their contents. Incineration or landfill should only be considered when recycling is not feasible.

SECTION 14: Transport information

14.1. UN number

UN No. (ADR/RID)	1950
UN No. (IMDG)	1950
UN No. (ICAO)	1950
UN No. (ADN)	1950

14.2. UN proper shipping name

Proper shipping name (ADR/RID)	AEROSOLS
Proper shipping name (IMDG)	AEROSOLS (CONTAINS n-heptane, Copper)
Proper shipping name (ICAO)	AEROSOLS
Proper shipping name (ADN)	AEROSOLS

14.3. Transport hazard class(es)

ADR/RID class	2.1
ADR/RID classification code	5F
ADR/RID label	2.1
IMDG class	2.1
ICAO class/division	2.1
ADN class	2.1

Transport labels

14.4. Packing group

ADR/RID packing group	None
IMDG packing group	None
ADN packing group	None
ICAO packing group	None

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

14.6. Special precautions for user

EmS	F-D, S-U
ADR transport category	2
Tunnel restriction code	(D)

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

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

SECTION 15: Regulatory information

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

National regulations	Health and Safety at Work etc. Act 1974 (as amended). The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No. 1348) (as amended) ["CDG 2009"]. EH40/2005 Workplace exposure limits.
EU legislation	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) (as amended). Commission Regulation (EU) No 2015/830 of 28 May 2015. Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

Inventories

EU - EINECS/ELINCS

None of the ingredients are listed or exempt.

SECTION 16: Other information

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Abbreviations and acronyms used in the safety data sheet	ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road. ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways. RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail. IATA: International Air Transport Association. ICAO: Technical Instructions for the Safe Transport of Dangerous Goods by Air. IMDG: International Maritime Dangerous Goods. CAS: Chemical Abstracts Service. ATE: Acute Toxicity Estimate. LC_{50}: Lethal Concentration to 50 % of a test population. LD_{50}: Lethal Dose to 50% of a test population (Median Lethal Dose). EC_{50}: 50% of maximal Effective Concentration. PBT: Persistent, Bioaccumulative and Toxic substance. vPvB: Very Persistent and Very Bioaccumulative.
Classification abbreviations and acronyms	Aquatic Acute = Hazardous to the aquatic environment (acute) Aquatic Chronic = Hazardous to the aquatic environment (chronic)
Classification procedures according to Regulation (EC) 1272/2008	Aquatic Acute 1 - H400: Aquatic Chronic 3 - H412: : Calculation method.
Training advice	Only trained personnel should use this material.
Revision date	17/05/2018
Revision	9
Supersedes date	21/11/2017
SDS number	5102
Hazard statements in full	H220 Extremely flammable gas. H222 Extremely flammable aerosol. H225 Highly flammable liquid and vapour. H229 Pressurised container: may burst if heated. H280 Contains gas under pressure; may explode if heated. H301 Toxic if swallowed. H302 Harmful if swallowed. H304 May be fatal if swallowed and enters airways. H311 Toxic in contact with skin. H315 Causes skin irritation. H319 Causes serious eye irritation. H331 Toxic if inhaled. H336 May cause drowsiness or dizziness. H373 May cause damage to organs through prolonged or repeated exposure. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects.