# Molybdenum disulphide dry film lubricant





MOLYSLIP DRY MOLY SPRAY is a high performance, resin bonded, dry film lubricant based on molybdenum disulphide. When applied to metal substrates the molybdenum disulphide forms a resilient, low friction film that protects against wear and corrosion. DRY MOLY SPRAY reduces metal pick-up and galling during component assembly and dry start up conditions and where traditional "wet" lubricants either can't be used or do not provide adequate lubrication.

DRY MOLY SPRAY can be used in a wide variety of operating conditions – the applied film will operate between -50°C and + 450°C without flaking or cracking. Unlike oils and greases the dry nature of the film will not attract dirt and dust and it is resistant to water wash-off making it ideal for use in extreme environments.

# Features and benefits

- Low co-efficient of friction film provides outstanding protection against wear
- Wide operating temperature range of -50°C to +450°C
- Does not attract dirt and dust
- Touch dry in under 1 minute allows components to be in service quickly
- Prevents pick-up and galling

# Instructions for use

Shake well, hold can upright and spray from a distance of approximately 15-30cm.

Coat the metal surface evenly and allow to dry.

After spraying invert the can and spray until clear (failure to do this can result in valve blockage).

If required burnish the surface with a lint free cloth after a minimum of 1 minute drying time.

# **Packaging**

400ml aerosol

# **Dry moly spray Technical Data**



# **Technical data (typical values)**

Property	Result
Appearance of applied film	Grey/black dry film
Propellant	LPG
Co-efficient of friction	0.08
Effective temperature range	-50°C up to +450°C

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

# Dry moly spray Safety Data Sheet



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 Dry Moly Spray

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

Identified uses Lubricant.

**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** Eye Irrit. 2 - H319 STOT SE 3 - H336

Environmental hazards Not Classified

2.2. Label elements

**Pictogram** 





Signal word Danger

**Hazard statements** H222 Extremely flammable aerosol.

H229 Pressurised container: may burst if heated

H319 Causes serious eye irritation.

H336 May cause drowsiness or dizziness.

# Dry moly spray Safety Data Sheet



Precautionary statements P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No

smoking.

P211 Do not spray on an open flame or other ignition source.

P251 Do not pierce or burn, even after use.

P261 Avoid breathing spray.

P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.

**Contains** acetone

Supplementary precautionary

statements

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.

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. P312 Call a POISON CENTER/ doctor if you feel unwell.

P337+P313 If eye irritation persists: Get medical advice/ attention.

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

P405 Store locked up.

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

Petroleum gases, liquefied 60-100%

Classification

Flam. Gas 1 - H220

Press. Gas, Liquefied - H280

acetone 10-30%

CAS number: 67-64-1 EC number: 200-662-2

Classification

Flam. Liq. 2 - H225 Eye Irrit. 2 - H319 STOT SE 3 - H336

Molybdenum disulphide 1-5%

CAS number: 1317-33-5 EC number: 215-263-9

Classification

Not Classified



xylene 1-5%

CAS number: 1330-20-7 EC number: 215-535-7 REACH registration number: 01-

2119488216-32-XXXX

Classification

Flam. Liq. 3 - H226 Acute Tox. 4 - H312 Acute Tox. 4 - H332 Skin Irrit. 2 - H315 Asp. Tox. 1 - H304

ethylbenzene <1%

CAS number: 100-41-4 EC number: 202-849-4

Classification

Flam. Liq. 2 - H225 Acute Tox. 4 - H332 Asp. Tox. 1 - H304

2,6-dimethylheptan-4-one <1%

Classification

Flam. Liq. 3 - H226 STOT SE 3 - H335

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 Get medical attention if any discomfort continues. 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. Maintain an open airway. Loosen tight clothing such as collar, tie or belt. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Get medical attention. Place unconscious person on their side in the recovery

position and ensure breathing can take place.

Ingestion Rinse mouth thoroughly with water. Give a few small glasses of water or milk to drink. Stop if

the affected person feels sick as vomiting may be dangerous. Never give anything by mouth to an unconscious person. Place unconscious person on their side in the recovery position and ensure breathing can take place. Keep affected person under observation. Get medical

attention if symptoms are severe or persist.

**Skin contact** Rinse with water.

Eye contact Rinse with water. Do not rub eye. Remove any contact lenses and open eyelids wide apart.

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** A single exposure may cause the following adverse effects: Headache. Nausea, vomiting.

Central nervous system depression. Drowsiness, disziness, disorientation, vertigo. Narcotic

effect.

**Ingestion** Due to the physical nature of this product, it is unlikely that ingestion will occur.

**Skin contact** Repeated exposure may cause skin dryness or cracking.

**Eye contact** Irritating to eyes.

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

#### **SECTION 5: Firefighting measures**

# 5.1. Extinguishing media

Suitable extinguishing media The product is 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 Containers can burst violently or explode when heated, due to excessive pressure build-up.

Bursting aerosol containers may be propelled from a fire at high speed. If aerosol cans are ruptured, care should be taken due to the rapid escape of the pressurised contents and

propellant. Vapours may form explosive mixtures with air.

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. Keep upwind to avoid inhalation of gases, vapours, fumes and smoke. Ventilate closed spaces before entering them. 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. If a leak or spill has not ignited, use water spray to disperse vapours and protect men stopping the leak. 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. Evacuate area. Risk of explosion. Provide adequate ventilation. No smoking, sparks, flames or other sources of ignition near spillage. Promptly remove any clothing that

becomes contaminated.

# 6.2. Environmental precautions

**Environmental precautions** Avoid discharge into drains or watercourses or onto the ground.



#### 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. Eliminate all ignition sources if safe to do so. No smoking, sparks, flames or other sources of ignition near spillage. Under normal conditions of handling and storage, spillages from aerosol containers are unlikely. If aerosol cans are ruptured, care should be taken due to the rapid escape of the pressurised contents and propellant. Small Spillages: Wipe up with an absorbent cloth and dispose of waste safely. Large Spillages: If the product is soluble in water, dilute the spillage with water and mop it up. Alternatively, or if it is not water-soluble, absorb the spillage with an inert, dry material and place it in a suitable waste disposal container. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. 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. Avoid exposing aerosol containers to high temperatures or direct sunlight. The product is flammable. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use. Spray will evaporate and cool rapidly and may cause frostbite or cold burns if in contact with skin. Avoid contact with eyes. Avoid inhalation of vapours and spray/mists.

# 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). Store locked up. Keep away from oxidising materials, heat and flames. Keep only in the original container. Keep container tightly closed, in a cool, well ventilated place. Keep containers upright. Protect containers from damage. Protect from sunlight. Do not store near heat sources or expose to high temperatures. Do not expose to temperatures exceeding 50°C/122°F.

#### Storage class

Chemical 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

#### 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

# acetone

Long-term exposure limit (8-hour TWA): WEL 1210 mg/m³ respirable dust Short-term exposure limit (15-minute): WEL 3620 mg/m³ respirable dust

#### Molybdenum disulphide



Long-term exposure limit (8-hour TWA): WEL 10 mg/m³ respirable dust Short-term exposure limit (15-minute): WEL 20 mg/m³ respirable dust

#### xylene

Long-term exposure limit (8-hour TWA): WEL 50 ppm 220 mg/m³ respirable dust Short-term exposure limit (15-minute): WEL 100 ppm 441 mg/m³ respirable dust

#### ethylbenzene

Long-term exposure limit (8-hour TWA): WEL 100 ppm 441 mg/m³ Dermal Short-term exposure limit (15-minute): WEL 125 ppm 552 mg/m³ Dermal

## 2,6-dimethylheptan-4-one

Long-term exposure limit (8-hour TWA): WEL 25 ppm 148 mg/m<sup>3</sup> Short-term exposure limit (15-minute): WEL 75 ppm 444 mg/m<sup>3</sup>

WEL = Workplace Exposure Limit

xylene (CAS: 1330-20-7)

**DNEL** Workers - Inhalation; Short term systemic effects: 289 mg/m³

Workers - Inhalation; Short term local effects: 289 mg/m³ Workers - Dermal; Long term systemic effects: 180 mg/kg Workers - Inhalation; Long term systemic effects: 77 mg/m³

PNEC - Fresh water; 0.327 mg/l

- Marine water; 0.327 mg/l

Sediment (Freshwater); 12.46 mg/kgSediment (Marinewater); 12.46 mg/kg

Soil; 2.31 mg/kgSTP; 6.58 mg/l

- Intermittent release; 0.327 mg/l

#### 8.2. Exposure controls

# Protective equipment





Appropriate engineering controls

Provide adequate general and local exhaust ventilation. Ensure the ventilation system is regularly maintained and tested. Good general ventilation should be adequate to control worker exposure to airborne contaminants. Observe any occupational exposure limits for the product or ingredients.

product of ingredient

Eye/face protection Wear tight-fitting, chemical splash goggles or face shield. If inhalation hazards exist, a full-

face respirator may be required instead.

**Hand protection** No specific hand protection recommended.

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.

#### **SECTION 9: Physical and Chemical Properties**

## 9.1. Information on basic physical and chemical properties

Appearance Aerosol.

**Colour** Dark. Grey.

**Odour** Characteristic.

Flash point <-60°C COC (Cleveland open cup).

Solubility(ies) Immiscible with 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

The following materials may react strongly with the product: Oxidising agents.

10.4. Conditions to avoid

Conditions to avoid Avoid exposing aerosol containers to high temperatures or direct sunlight. Pressurised

container: may burst if heated

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<sub>50</sub>) Based on available data the classification criteria are not met.

Acute toxicity - dermal

Notes (dermal LD<sub>50</sub>) Based on available data the classification criteria are not met.



ATE dermal (mg/kg) 56,931.4

Acute toxicity - inhalation

Notes (inhalation LC<sub>50</sub>) Based on available data the classification criteria are not met.

ATE inhalation (vapours mg/l) 569.31

Skin corrosion/irritation

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

Serious eye damage/irritation

Serious eye damage/irritation Causes serious eye irritation.

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** STOT SE 3 - H336 May cause drowsiness or dizziness.

Target organs Central nervous system

#### Specific target organ toxicity - repeated exposure

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

Aspiration hazard

**Aspiration hazard**Based on available data the classification criteria are not met.

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

length of exposure.

**Inhalation** A single exposure may cause the following adverse effects: Headache. Nausea, vomiting.

 $Central\ nervous\ system\ depression.\ Drowsiness,\ disziness,\ disorientation,\ vertigo.\ Narcotic$ 

effect.

**Ingestion** Due to the physical nature of this product, it is unlikely that ingestion will occur.

Skin contact Repeated exposure may cause skin dryness or cracking.

Eye contact Irritating to eyes.

Route of entry Ingestion Inhalation Skin and/or eye contact

Target organs Central nervous system



# **SECTION 12: Ecological Information**

**Ecotoxicity** Not regarded as dangerous for the environment. However, large or frequent spills may have

hazardous effects on the environment.

12.1. Toxicity

**Toxicity** Based on available data the classification criteria are not met.

## 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 The product contains volatile organic compounds (VOCs) which will evaporate easily from all

surfaces.

#### 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. Empty containers must not be punctured or incinerated because of

the risk of an explosion. 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.

## **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)** 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



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

No.

# 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-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 Not applicable.

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

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.

The Aerosol Dispensers Regulations 2009 (SI 2009 No. 2824).



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).

Council Directive of 20 May 1975 on the approximation of the laws of the Member States

relating to aerosol dispensers (75/324/EEC) (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-TI: Technical Instructions for the Safe Transport of Dangerous Goods by Air.

IMDG: International Maritime Dangerous Goods.

CAS: Chemical Abstracts Service.

ATE: Acute Toxicity Estimate.

LC₅o: Lethal Concentration to 50 % of a test population.

LD<sub>50</sub>: 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

Aerosol = Aerosol Eye Irrit. = Eye irritation

STOT SE = Specific target organ toxicity-single exposure

Classification procedures according to Regulation (EC)

1272/2008

STOT SE 3 - H336: Eye Irrit. 2 - H319: : Calculation method. Aerosol 1 - H222, H229: : Expert

judgement.

**Training advice** Only trained personnel should use this material.

Revision date 21/11/2017

Revision 3

Supersedes date 17/08/2017

SDS number 5159



Hazard statements in full H220 Extremely flammable gas.

H222 Extremely flammable aerosol.

H225 Highly flammable liquid and vapour.

H226 Flammable liquid and vapour.

H229 Pressurised container: may burst if heated

H280 Contains gas under pressure; may explode if heated.

H304 May be fatal if swallowed and enters airways.

H312 Harmful in contact with skin.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H335 May cause respiratory irritation.

H336 May cause drowsiness or dizziness.