

Safety Data Sheet according to Regulation (EC) No. 1907/2006, Annex II and TRGS 220

Commercial name: **GreaseMax® – Automatic Lubricator**

Created on: 8/8/2018

Last processed on: 8/8/2018

Print date / date of issue: 8/8/2018

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1. Identification of the Substance / Preparation and of the Company / Undertaking

Product name: GreaseMax Automatic lubricator

Recommended use: single point automatic lubrication

South African Supplier:

Industrial Fluid Solutions
18 & 20 Arnhem Crescent
Die Heuwel, Witbank
South Africa
Phone: 079 884 0632
Emergency telephone number: 079 884 0632

2. Hazards Identification

When used as intended, GreaseMax lubricators do not pose a hazard.

Hazard Classification: Hazardous substance
Non dangerous goods
Hazard classification according to the NOHSC. DG classification per ADGC

Additional hazard instructions for humans and environment:

The structural design of the housing prevents release of the small quantity of hazardous media contained in the unit when the unit is used for its intended purpose.

The unit is a double-cartridge dispenser. Containing: (1) non hazardous lubricant (2) 28mL caustic solution which is contained within a separate neoprene bladder, itself contained within the steel GreaseMax body

Hazards resulting from contact with lubricant: see lubricant material safety data sheet for lubricant used:

If damaged or opened, caustic liquid can leak out of the lubricator.

3. Composition / Information on Ingredients

Description and chemical characterization:

The lubricator serves for uniform distribution of a lubricant. 120 ml of lubricant can be dispensed in 1, 3, 6 or 12 months, depending on the version indicated by different colors of the activation screw and cap (see Technical Manual). All lubricants recommended by the manufacturer can be used. Separate material safety data sheets are available for these lubricants. When used as intended, contact with the lubricant does not occur during the lubrication operation. After screwing off the lubricator, a small quantity of lubricant can be released when the counter-pressure at the lubricating point is high.

The lubricant is dispensed through oxidation of zinc in a potassium hydroxide solution in the lubricator which produces a small volume of hydrogen whose maximum pressure of 8 bars operates a piston which presses the lubricant out of the supply reservoir.

Contents in state delivered not considering lubricant used:

| <i>Substance</i> | <i>CAS No.</i> | <i>EINECS No.</i> | <i>Designation</i> | <i>R-phrases</i> | <i>Weight %⁽¹⁾ (Quantity²⁾)</i> |
|--|----------------|-------------------|--------------------|------------------|---|
| Max. 30 % potassium-hydroxide solution | 1310-58-3 | 215-181-3 | Xn, C | 22-35 | < 18 (36 g) |

Contents after completion of lubrication operation:

| <i>Substance</i> | <i>CAS No.</i> | <i>EINECS No.</i> | <i>Designation</i> | <i>R-phrases</i> | <i>Weight . %* (Quantity²⁾)</i> |
|--|----------------|-------------------|--------------------|------------------|--|
| Max. 30 % potassium-hydroxide solution | 1310-58-3 | 215-181-3 | Xn, C | 22-35 | < 18 (36 g) |

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| <i>Substance</i> | <i>CAS No.</i> | <i>EINECS No.</i> | <i>Designation</i> | <i>R-phrases</i> | <i>Weight %¹⁾ (Quantity²⁾)</i> |
|------------------|----------------|-------------------|--------------------|------------------|--|
| Hydrogen | 1333-74-0 | 215-605-7 | F+ | 12 | < 6,4*10 ⁻³ (<14 mg) |
| Zinc hydroxide | 20427-58-1 | 243-814-3 | Xi | 36/38 | < 0.4 (< 0.7 g) |

1): based on weight of lubricator without lubricant

2): absolute quantity per lubricator

See Chapters 15 and 16 for R-phrases texts

4. First Aid Measures

| | |
|------------------------------------|---|
| <i>General information:</i> | No first-aid measures are required when handling the intact lubricator. However, if the lubricator is damaged, a caustic liquid can leak out. The first-aid measures specified below refer to this caustic liquid. |
| <i>If inhaled:</i> | Not applicable: |
| <i>Following skin contact:</i> | Rinse affected skin areas as quickly as possible with water, then remove contaminated clothing and rinse affected skin areas for approx. 10 minutes with water, then wash with soap and water. If irritation continues, consult physician: |
| <i>Following eye contact:</i> | Rinse eye as quickly as possible with large quantities of water for 10 to 15 minutes with eyelid open. Consult physician immediately. |
| <i>If swallowed:</i> | Rinse out mouth, spit out liquid. If slight quantities of concentrated solution or large quantities of highly diluted solution have been swallowed: If patient is conscious – immediately have patient drink 1 glass of water slowly. However, do not induce vomiting! If large quantities of concentrated solution have been consumed do not administer water. Keep patient calm, protect against under-cooling. In the event of spontaneous vomiting, hold patient's head low in area of abdomen to prevent aspiration. In the meantime, call a physician to the accident location. |
| <i>Instructions for physician:</i> | The local injury process is very quick, pain perception may be delayed. Eyes: Injury particularly to conjunctiva, cornea, sclera (edema, ulceration, perforation, clouding of cornea), in rare cases also of retina or choroids. After eye contact, rinse intensively for at least 15 minutes (in the event of blepharospasm, apply a few drops of 2% Lidocain), provide for immediate further treatment by specialist. Skin: Erythema -> Erosion with tissue swelling/jelly surface (colliquation necrosis),-> skin dysfunction (rule of nines!). |

5. Fire-Fighting Measures

| | |
|--|--|
| <i>General:</i> | Non-combustible in state delivered. After use, the lubricator contains small quantities of hydrogen gas. |
| <i>Suitable extinguishing agent:</i> | Foam, dry chemical, carbon dioxide.. |
| <i>Note:</i> | During use of the lubricator, minor quantities of hydrogen gas are produced, which is under a maximum pressure of 10 bars. 28 ml of caustic liquid is contained in one lubricator. (See Chapters 2 and 4). |
| <i>Special protective equipment for fire fighting:</i> | Autonomous breathing apparatus: |
| <i>Other instructions:</i> | Cool lubricator with spray jet. Avoid infiltration of extinguishing water into natural bodies of water, ground water and sewer. |

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6. Accidental Release Measures

| | |
|--|--|
| Precautionary measures for humans | Skin protection. Safety shoes. Eye protection. If lubricator is damaged, caustic liquid can escape. Extremely small quantities of hydrogen gas can escape in the event of damage after using the lubricator. |
| <i>Environmental protection measures:</i> | Do not allow caustic liquid to infiltrate into soil, ground water, surface water or sewer. |
| <i>Procedures for cleaning / picking up:</i> | Pick up escaped liquid with absorbent material (silicate gel, universal binder, saw dust, cat litter). Dispose of contaminated material as specified in Item 13. |

7. Handling and Storage

| | |
|--|---|
| <i>Notes on safe handling:</i> | Read instructions for use or Technical Manual before using. Do not open or damage lubricator. After use, remove lubricator from lubrication point only when replacement is intended. Lubricator is under pressure during use. When activating the lubricator, wear skin and eye protection. |
| <i>Notes on fire and explosion protection:</i> | Keep away from sources of ignition during lubrication and after use, see also Chapter 5. |
| <i>Storage:</i> | Store dry at room temperature. After use, store in well-ventilated rooms and away from ignition sources. Protect against direct sunlight. Do not store together with toxic or highly toxic substances. |

8. Exposure Controls / Personal Protection

- 8.1 *Additional instructions for design of technical equipment:* Read technical manual.
- 8.2 Observe exposure limits for lubricant used. See corresponding lubricant data safety sheet.
- 8.3 *Personal protective gear*
- 8.3.1 *Respiratory protection:* Not normally required. Required only when lubricator is damaged and the caustic liquid contained is atomized (in practice unlikely): Particle filter P 2 or P 3.
- 8.3.2 *Hand protection:* Required for activation of lubricator and when lubricator is damaged and caustic fluid escapes: Wear gloves tested in conformance with DIN EN 374 (consult glove manufacturer). If this is not possible for safety reasons (e.g. working on rotating machines): Use skin protection cream. Consult company physician regarding type of skin protection cream.
Note: Contrary to the specifications in TRGS 220, the specification of the glove material is not sufficient. The penetration times do not depend on the glove material alone, but also on the production process. Preferable are gloves of natural rubber/natural latex - NR (0.5 mm), polychloroprene- CR (0.5 mm), Nitrile rubber/Nitrile latex - NBR (0.35 mm), butyl rubber - Butyl (0.5 mm), fluoro caoutchouc - FKM (0.4 mm) or polyvinyl chloride - PVC (0.5 mm).
- 8.3.3 *Skin protection:* Not normally required. Required only when contact with caustic fluid is possible: See hand protection.
- 8.3.4 *Eye protection:* Protective glasses with side guard.
- 8.3.5 *Foot protection:* Safety shoes EN ISO 20345.
- 8.3.6 *General:* Change contaminated clothing immediately. Use of skin protection cream is recommended. Wash hands after contact with product. Observe general precautionary measures for handling hazardous materials, particularly do not eat, drink, smoke or sniff tobacco at workplace.

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9. Physical and Chemical Properties

9.1 Appearance

Form: Solid with liquid constituent.
Color: Metallic, etc.
Odor: None

9.2 Safety Relevant Data

Melting range: Not relevant
Boiling range: Above 100°C (boiling range of caustic liquid)
Flash point: Not applicable
Ignition temperature: Only after use for enclosed hydrogen: 560°C
Spontaneous combustion temperature: Product is not subject to spontaneous combustion at 25°C
Explosion limits: for hydrogen:
lower: 4 %-by-volume
upper: 77 %-by-volume
Vapor pressure: Not relevant
Density: Not determined
Bulk density: Not relevant
Solubility in water: Only potassium hydroxide and zinc hydroxide are soluble in water
pH value: Caustic liquid: pH approx. 13
Solubility in grease: Not soluble
Distribution coefficient n-Octanol/Water: Not determined
Viscosity: Not determined
Percentage of solvent: 0% except for water

10. Stability and Reactivity

Thermal decomposition: None at common temperatures. At high temperatures, the rubber and plastic parts can decompose.
Conditions or substances to be avoided: After use of lubricator:
Oxidative substances with hydrogen (KMnO₄, hydrogen peroxide, etc.).
Dangerous decomposition products: Not known.
Dangerous polymerizations: None.

11. Toxicological Information

11.1 Specifications for product:

No toxicological data is available for this product.

11.2 The following data is available for the pure contents:

11.2.1 Potassium hydroxide (max. 30% contained in caustic fluid, 28mL):

Acute toxicity:

Acute oral toxicity:: LD₅₀ (Rat, oral): 273 mg/kg (Merck-MSDS)

After inhaling: Caustic burns
Following skin contact: Caustic burns Drying effect with formation of chapped and cracked skin.
Following eye contact: Caustic burns Danger of cornea clouding.
If swallowed: Caustic burns (pain, collapse).

Sensitization: No indication of sensitization available.
Mutagenicity: No indication of mutagenicity:

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Reproductive toxicity: No indication of reproductive toxicity available.
Carcenogenity: No indication of carcenogeneous potential available.

Toxicity following repeated exposition (subacute to chronic toxicity):

No indications for subacute or chronic toxicity.

Other toxicological information

Note: None.

11.2.2 For pure contents, hydrogen (after completion of lubrication operation):

Acute toxicity: No data available from quantitative animal experiments.

After inhaling: Danger of asphyxiation for not relevantly high concentrations of hydrogen here.

Following skin contact: No symptoms known. No resorption through skin.

Following eye contact: In animal test (rabbit): No eye damage (GESTIS).

If swallowed: Not applicable:

Sensitization: No indication of sensitization available.

Mutagenicity: No indication of mutagenicity:

Reproductive toxicity: No indication of reproductive toxicity available.

Carcenogenity: No indication of carcenogeneous potential available.

Toxicity following repeated exposition (subacute to chronic toxicity):

No subacute or chronic effects known (GESTIS).

Other toxicological information: None.

11.2.3 Zinc hydroxide (max. 2% contained in caustic fluid after completion of lubrication operation):

Acute toxicity: No data available from animal experiments.

After inhaling: Not relevant here because in aqueous solution.

Following skin contact: Irritation.

Following eye contact: Irritation.

If swallowed: Following applies in general for zinc compounds: Metallic taste, nausea, diarrhea and fever.

Sensitization: No indication of sensitization available.

Mutagenicity: No indication of mutagenicity:

Reproductive toxicity: No indication of reproductive toxicity available.

Carcenogenity: No indication of carcenogeneous potential available.

Toxicity following repeated exposition (subacute to chronic toxicity):

No indications for subacute or chronic toxicity.

Other toxicological information: None.

11.2.4 Other constituents:

The other constituents in the lubricator are negligible in terms of their toxicology.

12. Ecological Information

Product is weakly water polluting (WGK 1). No ecotoxic data is available for this product.

The following data are available for the **pure** contents:

12.1 Potassium hydroxide (max. 30% contained in caustic fluid):

Ecotoxic effects: Damaging effect due to pH shift.

Ecotoxic data:

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Fish toxicity: Gambusio affinis: LC₅₀: 80 mg/l / 24 h (Merck-MSDS)

Other information:

WGK: 1 (weakly water polluting) VwVwS Appendix 2, Code No. 345

12.2 Hydrogen

Ecotoxic effects: No information available. Mentionable ecotoxic effects are not expected.

Ecotoxic data: No ecotoxic data available.

Other information:

WGK: Not relevant.

12.3 Zinc hydroxide (max. 2% contained in caustic fluid after completion of lubrication operation):

No information available. The ecotoxic properties should not differ significantly from those of zinc or other zinc salts.

Ecotoxic data for zinc:

Ecotoxic effects:

Ecotoxic data: No data available from animal experiments.

Other information:

WGK:

13. Disposal Considerations

13.1 GreaseMax unit: Dispose of in a manner consistent with applicable local regulations. Expired GreaseMax units contain a very small residual quantity of grease or oil. Dispose of as hazardous waste.

EEC Waste code: 15 02 02*

EEC Waste name: Absorbing and filter materials (including oil filters, etc., wiping rags and protective clothing contaminated by hazardous substances).

13.2 Cardboard Packaging (for recycling):

EEC Waste code: 15 01 01

EEC Waste name: Paper and cardboard

Waste code and name according to AVV

14. Transport Information

Not classified a Dangerous Good according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.

U.N Number None allocated

Proper Shipping Name None allocated

DG Class None allocated

Hazchem Code None allocated

Packing Group None allocated

Not classified as a hazardous product within the transport regulations ADR/RID/GGVS/GGVE, ADNR, IMDG, ICAO/IATA.

Product released according to Chapter 3.4.

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15. Regulatory Information

Poison Schedule: S6. The potassium hydroxide contained in GreaseMax whilst not accessible is a Schedule S6 Poison and must be stored handled and used according to the appropriate regulations.
(Australia)

15.1 Marking according to EC: (Guideline 67/548/ECC including 29th amendment)

| | |
|---|---|
| - Hazard symbols: | C: Caustic |
| - Hazard determining components for labeling: | Contains potassium hydroxide solution |
| R-phrases | 22 Damaging to health when swallowed 34 Causes caustic burns |
| S-phrases: | 2 Keep away from children 36/37/39 Always wear suitable protective clothing, protective gloves and eye protection/face protection during work 45 In the event of accidents or illness, consult physician immediately (if possible, show this label or material safety data sheet) |

15.2 Classification according to EC: C: R 35; Xn: R 22

Note: The used and unused lubricator is a product and does not require marking according to European regulations.

In Germany and other EU countries, products must also be marked.

15.3 National regulations in Germany

15.3.1 Marking according to Hazardous Substance Code and on basis of approval notification dated 28 February, 2006 from District Government Office in Arnsberg, Dept. 8 Mining and Energy in North Rhine/Westphalia

Note: The R-phrase R 22 is absent in the approval notification and the number of required S-phrases is too large (cf. RL 1999/45/EC, Art. 10, Item. 2.6), because no contact occurs with hazardous materials when the lubricator is used as intended and the quantity of hydrogen contained is nearly negligible so that the minor possible hazard posed by the lubricator does not justify 7 S-phrases. Otherwise, the S-phrases refer to the product, specifically the lubricator, for which some of the additionally required S-phrases (S 24/25-26-27/28). Moreover, the procedure according to S-phrase S 27/28 is damaging (cf. Chapter 4). Nevertheless, all 7 S-phrases are specified.

| | |
|---|--|
| - Hazard symbols: | C: Caustic; F+ highly inflammable |
| - Hazard determining components for labeling: | Contains potassium hydroxide solution and also contains hydrogen after use |
| R-phrases | 12 Highly inflammable 22 Damaging to health when swallowed 34 Causes caustic burns |
| S-phrases: | 16 Keep away from ignition sources – No smoking 24/25 Avoid contact with eyes and skin 26 Upon contact with eyes, rinse immediately and thoroughly with water and consult physician 27/28 Upon contact with skin, remove contaminated, saturated clothing immediately and wash skin immediately with large quantities of water 35 Dispose of wastes and containers in secure manner 36/37/39 Always wear suitable protective clothing, protective gloves and eye protection/face protection during work |

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45 In the event of accidents or illness, consult physician immediately (if possible, show this label or material safety data sheet)

15.3.2 *Accident code V:* Not applicable due to slight quantities

15.3.3 *Previous VbF class*:* Not applicable

*: With elimination of VbF, the hazard classes are no longer defined, however, they still apply in the technical regulations (TRbF)

15.3.4 *Air pollution control regulation:* Not applicable

15.3.5 *WHG:* Water resources act: 1 (weakly water polluting)

15.3.6 *VCI storage class:* 8 B

15.4 *Other regulations, limitations and prohibition regulations:*

Observe employment limitations for youth (Section 22 of Youth Labor Protection Law).

TRGS 401: Hazard from skin contact, determination, evaluation – Measures; edition May 2006; BArbBl. 5/2006

Data sheet published by Employers' Liability Insurance Association for Chemical Industry:

M050 (BGI 564): Handling of health-endangering substances

Data sheet published by Employers' Liability Insurance Association for Chemical Industry:

M004 (BGI 595): Irritating/caustic substances

16. Other Information

Date of preparation of MSDS: 5/12/2008

Text of R-phrases from Chapter 2:

R 36/38 Irritates eyes and skin

Abbreviations used:

GESTIS: Substance database of Employers' Liability Insurance Association, Institute for Labor Protection

SDB: Material safety data sheet

This information is based on our present state of knowledge and serves to describe the product in terms of the safety precautions to be taken at the workplace. It does not represent any guarantee of properties of the product described under any circumstances. In the event of unforeseen effects or properties of this product occur, the material safety data sheet is not a substitute for consulting trained specialists. User is obligated to test this product, use it safely and observe all applicable laws and regulations. The manufacturer assumes no liability for damage or injury resulting from use not corresponding to the specified product application for the material, from failure to observe the recommendations or from the properties inextricably associated with the nature of the material. Resellers are obligated to third parties to take all steps required to ensure that all persons using or handling the product are provided with the information in this material safety data sheet. Employers are obligated to explain all precautionary measures to be taken to employees and others who could be affected by the effects described in this material safety data sheet.