

1. Product and company identification

| | | |
|-----------------------------|---|------------------------------|
| Common name | : ROYCO 49 | |
| Synonym | : Lubricant. | |
| MSDS# | : AC1042 | Supplier/Manufacturer |
| MILSPEC# | : Mil-DTL-23549 | Anderol Canada Corp. |
| Material use | : Lubricant. | 700 Third Line |
| In case of emergency | : CANUTEC (613) 996-6666 (Canada) CHEMTREC: 800-424-9300 (United States) | Oakville, ONT |
| MSDS authored by: | : Kemika XXI Inc. + 1-450-435-7475 | Canada L6J 5A3 |
| Date of issue | : 04/30/2006 | Tel: (905) 827-9087 |
| | | Fax: (905) 827-2862 |

2. Hazards identification

| | |
|-----------------------|------------------------|
| Physical state | : Semi-solid (grease). |
| Odor | : Slight. |

| | |
|---------------------------------------|---|
| Emergency overview | : WARNING! CANCER HAZARD. CONTAINS MATERIAL WHICH CAN CAUSE CANCER. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. Avoid contact with skin and clothing. Avoid breathing dust. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Risk of cancer depends on duration and level of exposure. This product contains a component which, in powdered form, may cause respiratory tract and eye irritation; however, since this component is incorporated into a grease, the risk of inhalation of is negligible, as is any possible cancer hazard associated with this material. |
| Routes of entry | : Skin contact. Eye contact. Ingestion. |
| Potential acute health effects | |
| Eyes | : Irritating to eyes. |
| Skin | : Irritating to skin. |
| Inhalation | : Irritating to respiratory system. |
| Ingestion | : Practically non-toxic if swallowed. |
| Potential chronic health | |

| | |
|---|---|
| Medical conditions aggravated by over-exposure | : Repeated skin exposure can produce local skin destruction or dermatitis. Repeated exposure of the eyes to a low level of dust can produce eye irritation. |
|---|---|

See toxicological information (section 11)

3. Composition/information on ingredients

United States

| Name | CAS number | % |
|--------------------------|------------|---------|
| Molybdenum disulfide | 1317-33-5 | 5 - 10 |
| Sodium nitrite | 7632-00-0 | 1 - 5 |
| N-Phenyl-1-naphthylamine | 90-30-2 | 0.5 - 1 |

Canada

| Name | CAS number | % |
|--------------------------|------------|---------|
| Molybdenum disulfide | 1317-33-5 | 5 - 10 |
| Sodium nitrite | 7632-00-0 | 1 - 5 |
| N-Phenyl-1-naphthylamine | 90-30-2 | 0.5 - 1 |

Mexico

| Name | UN number | IDLH | Classification | | | | CAS number | % |
|--------------------------|----------------|------------------------|----------------|---|---|---------|------------|---------|
| | | | H | F | R | Special | | |
| Molybdenum disulfide | Not regulated. | 5000 mg/m ³ | 0 | 0 | 0 | | 1317-33-5 | 5 - 10 |
| Sodium nitrite | UN1500 | - | 2 | 0 | 1 | OX | 7632-00-0 | 1 - 5 |
| N-Phenyl-1-naphthylamine | Not regulated. | - | 1 | 1 | 0 | | 90-30-2 | 0.5 - 1 |

Brazil

| Name | CAS number | % |
|--------------------------|------------|---------|
| Molybdenum disulfide | 1317-33-5 | 5 - 10 |
| Sodium nitrite | 7632-00-0 | 1 - 5 |
| N-Phenyl-1-naphthylamine | 90-30-2 | 0.5 - 1 |

See Sections 8, 11 and 14 for details.

4. First aid measures

- Eye contact** : Check for and remove any contact lenses. In case of contact, immediately flush skin with plenty of water for at least 20 minutes while removing contaminated clothing and shoes. Get medical attention if irritation occurs.
- Skin contact** : Wash with soap and water. Get medical attention if irritation occurs.
- Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms appear.
- Ingestion** : Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
- Notes to physician** : Not available.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

5. Fire-fighting measures

- Flammability of the product** : May be combustible at high temperature.
- Products of combustion** : The final products of combustion are carbon oxides and water. Nitrogen, sulfur and metal oxides may also be produced in some cases.
- Extinguishing media**
 - Suitable** : Use an extinguishing agent suitable for the surrounding fire.
 - Not suitable** : None known.
- Special exposure hazards** : No specific hazard.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.
- Environmental precautions** : Avoid dispersal of spilled material, runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : If emergency personnel are unavailable, vacuum or carefully scoop up spilled material and place in an appropriate container for disposal by incineration. Avoid creating dusty conditions and prevent wind dispersal.

7 . Handling and storage

- Handling** : Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing dust. Wash thoroughly after handling.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area.

8 . Exposure controls/personal protection

United States

Product name

Molybdenum disulfide

Exposure limits

ACGIH TLV (United States, 1/2005).

TWA: 3 mg/m³ 8 hour(s). Form: Insoluble

OSHA PEL (United States, 8/1997).

TWA: 15 mg/m³ 8 hour(s). Form: Total dust

Canada

Product name

Molybdenum disulfide

Exposure limits

ACGIH TLV (Canada, 1/2005).

TWA: 3 mg/m³ 8 hour(s). Form: Insoluble

Mexico

Product name

Molybdenum disulfide

Exposure limits

NOM-010-STPS (Mexico, 9/2000).

CCT: 20 mg/m³ 15 minute(s). Form: All forms.

CPT: 10 mg/m³ 8 hour(s). Form: All forms.

Brazil

Product name

Molybdenum disulfide

Exposure limits

ACGIH TLV (Canada, 1/2005).

TWA: 3 mg/m³ 8 hour(s). Form: Insoluble

Engineering measures : Use only with adequate ventilation. If user operations generate dust, fumes, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal protection

Eye protection : Safety glasses with side shields.

Skin protection/Body : Not applicable.

Respiratory protection : Not applicable.

Hand protection. : Natural rubber (latex).



HMIS Code/Personal protective equipment : B

Personal protection in case of a large spill : Safety glasses, goggles or face shield. Impervious gloves. Full suit. Boots. Wear NIOSH-approved self-contained breathing apparatus or equivalent and full protective gear. Wash hands, forearms and face thoroughly after handling compounds and before eating, smoking and using the lavatory and at the end of the day. Follow good industrial hygiene practice.

9 . Physical and chemical properties

Physical state : Semi-solid (grease).

Color : Black.

Odor : Slight.

Specific gravity : 0.99 (Water = 1)

10 . Stability and reactivity

Stability and reactivity : The product is stable.

Conditions of instability : None known.

Incompatibility with various substances : Reactive with oxidizing materials, reducing materials, organic materials, metals, acids and moisture.

Hazardous polymerization : Will not occur.

Conditions of reactivity : None known.

11 . Toxicological information

Toxicity data

| Product/ingredient name | Test | Result | Route | Species |
|--------------------------|------|-------------|-------|---------|
| ROYCO 49 | LD50 | >2000 mg/kg | Oral | Rat |
| Sodium nitrite | LD50 | 180 mg/kg | Oral | Rat |
| | LD50 | 186 mg/kg | Oral | Rabbit |
| | LD50 | 175 mg/kg | Oral | Mouse |
| | LD50 | 1625 mg/kg | Oral | Rat |
| N-Phenyl-1-naphthylamine | LD50 | 1231 mg/kg | Oral | Mouse |

Acute Effects

Eyes : Irritating to eyes.

Skin : Irritating to skin.

Inhalation : Irritating to respiratory system.

Ingestion : Practically non-toxic if swallowed.

Potential chronic health effects : Carcinogenic effects Classified 1 (Known to be human carcinogens.) by NTP, + (Proven.) by NIOSH [Graphite]. Classified A2 (Suspected for humans.) by ACGIH, 2A (Probable for human.) by IARC [Graphite].
Mutagenic effects Not available.
Teratogenic effects: Not available.

12 . Ecological information

Ecotoxicity data

| Product/ingredient name | Species | Period | Result |
|-------------------------|----------------------------|------------|-----------|
| Sodium nitrite | Oncorhynchus mykiss (LC50) | 96 hour(s) | 0.11 mg/l |
| | Oncorhynchus mykiss (LC50) | 96 hour(s) | 0.14 mg/l |
| | Oncorhynchus mykiss (LC50) | 96 hour(s) | 0.15 mg/l |
| | Oncorhynchus mykiss (LC50) | 96 hour(s) | 0.17 mg/l |
| | Oncorhynchus mykiss (LC50) | 96 hour(s) | 0.18 mg/l |
| | Oncorhynchus mykiss (LC50) | 96 hour(s) | 0.19 mg/l |

- Environmental precautions** : Harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.
- Octanol/water partition coefficient** : The product is more soluble in octanol.
- Bioconcentration factor** : Not available.
- Products of degradation** : The final products of biodegradation are carbon oxides and water. Nitrogen and sulfur oxides and metal salts may also be produced in some cases.
- Toxicity of the products of biodegradation** : The product itself and its products of degradation are not toxic.

13 . Disposal considerations

- Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material, runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional and local authority requirements.

14 . Transport information

NAERG : Not applicable.

Regulatory information

UN/ IMDG/IATA DOT/TDG : Not regulated by any transport mode.

15 . Regulatory information

United States

HCS Classification : Irritating material
Carcinogen

U.S. Federal regulations : TSCA 8(b) inventory: All components listed.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: Sodium nitrite; Graphite, natural.

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Sodium nitrite: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard; Graphite, natural.: Immediate (acute) health hazard

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: Sodium nitrite

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

SARA 313

| | Product name | CAS number | Concentration |
|--|---------------------|-------------------|----------------------|
| Form R - Reporting requirements | : Sodium nitrite | 7632-00-0 | 1 - 5 |
| Supplier notification | : Sodium nitrite | 7632-00-0 | 1 - 5 |

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations : Pennsylvania RTK: Sodium nitrite: (environmental hazard, generic environmental hazard); Silica crystalline, quartz: (generic environmental hazard); Silica, Crystalline - Cristobalite: (generic environmental hazard); Graphite, natural.: (generic environmental hazard); Barium dinonylnaphthalene sulfonate: (environmental hazard, generic environmental hazard); N,N-bis(2-Ethylhexyl)-ar-methyl-1H-Benzotriazole-1-methanamine; Di(2-Ethylhexyl) Amine: (generic environmental hazard)
 Massachusetts RTK: Sodium nitrite; Silica crystalline, quartz; Silica, Crystalline - Cristobalite; Molybdenum disulfide; Graphite, natural.; Di(2-Ethylhexyl) Amine
 New Jersey: Sodium nitrite; Silica crystalline, quartz; Concrete unit paving products including concrete pavers, precast concrete paving slabs, concrete grid pavers, and permeable interlocking concrete pavers; Silica, Crystalline - Cristobalite; Molybdenum disulfide; Barium dinonylnaphthalene sulfonate; N,N-bis(2-Ethylhexyl)-ar-methyl-1H-Benzotriazole-1-methanamine; Di(2-Ethylhexyl) Amine

WARNING: This product contains a chemical known to the State of California to cause cancer.

In the form used in this product, however, the risk to the end user through normal use of this product is minimal.

| Ingredient name | Cancer | Reproductive | No significant risk level | Maximum acceptable dosage level |
|------------------------------------|---------------|---------------------|----------------------------------|--|
| Silica crystalline, quartz | Yes. | No. | No. | No. |
| Silica, Crystalline - Cristobalite | Yes. | No. | No. | No. |

Canada

WHMIS (Canada) : Class D-2A: Material causing other toxic effects (Very toxic).
 Class D-2B: Material causing other toxic effects (Toxic).



CEPA DSL: All components listed.

This product has been classified in accordance with the hazard criteria of the Canadian CPR, the United States OSHA, the Mexican NOM -018-STPS-2000 and the Brazilian NBR 14725:2001. This MSDS contains all the information required by the CPR, OSHA, the American National Standard Institute (ANSI) Z400.1, NOM -018-STPS-2000 and NBR 14725:2001.

Mexico

| Classification | | HAZARD RATINGS |
|-----------------------|--|--|
| | | 4- Extreme 3- Serious 2- Moderate 1- Slight 0- Minimal |

International lists : This product, (and its ingredients) is (are) listed on national inventories, or is (are) exempted from being listed, Australia (AICS), in Europe (EINECS/ELINCS), in Korea (TCCL), in Japan (METI), in the Philippines (RA6969).

16 . Other information

Label requirements (U.S.A.) : CANCER HAZARD.
CONTAINS MATERIAL WHICH CAN CAUSE CANCER.
CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.

Hazardous Material Information System (U.S.A.) :

HMIS RATING

| | | |
|---------------------|---|---|
| Health | * | 1 |
| Fire hazard | | 1 |
| Physical Hazard | | 1 |
| Personal protection | | B |

HAZARD RATINGS

- 4- Extreme
- 3- Serious
- 2- Moderate
- 1- Slight
- 0- Minimal

See section 8 for more detailed information on personal protection.

National Fire Protection Association (U.S.A.) :



References

- : ANSI Z400.1, MSDS Standard, 2004. - Manufacturer's Material Safety Data Sheet. - 29CFR Part1910.1200 OSHA MSDS Requirements. - 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG. - Canada Gazette Part II, Vol. 122, No. 2. Registration SOR/88-64, 31 December 1987. Hazardous Products Act "Ingredient Disclosure List" - Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2005. - Official Mexican Standards NOM-018-STPS-2000 and NOM-004-SCT2-1994. Brazil NBR 14725:2001.

Responsible name : Mr. Max Naggar
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Version : 4

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