



Material Safety Data Sheet

ROYCO 22MS

1 . Product and company identification

Product name	: ROYCO 22MS
Material uses	: Lubricant.
Supplier/Manufacturer	: Chemtura Canada Co. / Cie 700 Third Line Oakville, ONT Canada L6J 5A3 Tel: (905) 827-9087 Fax: (905) 827-2862
MSDS #	: AC1082
MILSPEC#	: Mil-G-81827
Validation date	: 07/30/2007
MSDS authored by:	: Atrion Regulatory Services, Inc.
In case of emergency	: CHEMTREC: 800-424-9300 (United States) CANUTEC (613) 996-6666 (Canada)

2 . Hazards identification

Physical state	: Semi-solid (grease).
Hazard status	: This material is classified hazardous under OSHA regulations in the United States, the WHMIS Controlled Product Regulation in Canada, the NOM-018-STPS-2000 in Mexico and Brazil NBR 14725:2001.
Emergency overview	: WARNING! CAUSES EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. Irritating to eyes and skin. May cause sensitization by skin contact. Avoid exposure - obtain special instructions before use. Do not get on skin or clothing. Avoid contact with eyes. Contains material that can cause target organ damage. Wash thoroughly after handling. Since the product is in paste form, the risk of exposure to a carcinogen dust is minimum, this is why the related hazard statements are not shown in this MSDS. If material is to be dried and sanded by users, the risk of inhalation of dust containing a carcinogen dust will be increased, together with the risk of cancer hazard.
Routes of entry	: Skin contact. Eye contact. Ingestion.
Potential acute health effects	
Inhalation	: Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion	: No known significant effects or critical hazards.
Skin	: Irritating to skin. May cause sensitization by skin contact.
Eyes	: Irritating to eyes.
Potential chronic health effects	
Chronic effects	: Contains material that can cause target organ damage.
Carcinogenicity	: See above.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.
Over-exposure signs/symptoms	

2. Hazards identification

- Inhalation** : No specific data.
- Ingestion** : No specific data.
- Skin** : Adverse symptoms may include the following:
irritation
redness
- Eyes** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- 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	1 - 5
Graphite	7782-42-5	1 - 5
Sodium nitrite	7632-00-0	1 - 5
N-Phenyl-1-naphthylamine	90-30-2	0.1 - 1

Canada

Name	CAS number	%
Molybdenum disulfide	1317-33-5	1 - 5
Graphite	7782-42-5	1 - 5
Sodium nitrite	7632-00-0	1 - 5
N-Phenyl-1-naphthylamine	90-30-2	0.1 - 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	1 - 5
Graphite	Not regulated.	1250 mg/m ³	0	1	0		7782-42-5	1 - 5
Sodium nitrite	UN1500	-	2	0	2	OX	7632-00-0	1 - 5
N-Phenyl-1-naphthylamine	Not regulated.	-	1	1	0		90-30-2	0.1 - 1

Brazil

Name	CAS number	%
Molybdenum disulfide	1317-33-5	1 - 5
Graphite	7782-42-5	1 - 5
Sodium nitrite	7632-00-0	1 - 5
N-Phenyl-1-naphthylamine	90-30-2	0.1 - 1

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4 . First aid measures

- Eye contact** : Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 20 minutes. 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.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5 . Fire-fighting measures

- Flammability of the product** : No specific fire or explosion hazard.
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Hazardous combustion products** : The final products of combustion are carbon oxides and water. Nitrogen, sulfur and metal oxides may also be produced in some cases.
- 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** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7 . Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage

: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

United States

Molybdenum disulfide

ACGIH TLV (United States, 1/2006).

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

OSHA PEL (United States, 11/2006).

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

Graphite

ACGIH TLV (United States, 1/2006).

TWA: 2 mg/m³ 8 hour(s). Form: Dust

NIOSH REL (United States, 12/2001).

TWA: 2.5 mg/m³ 10 hour(s). Form: Respirable fraction

OSHA PEL Z3 (United States, 9/2005).

TWA: 15 MPPCF 8 hour(s).

Canada

Molybdenum disulfide

ACGIH TLV (United States, 1/2006).

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

OSHA PEL (United States, 11/2006).

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

Graphite

ACGIH TLV (United States, 1/2006).

TWA: 2 mg/m³ 8 hour(s). Form: Dust

NIOSH REL (United States, 12/2001).

TWA: 2.5 mg/m³ 10 hour(s). Form: Respirable fraction

OSHA PEL Z3 (United States, 9/2005).

TWA: 15 MPPCF 8 hour(s).

Mexico

Molybdenum disulfide

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

LMPE-CT: 20 mg/m³, ((Mo)) 15 minute(s).

LMPE-PPT: 10 mg/m³, ((Mo)) 8 hour(s).

Graphite

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

LMPE-PPT: 2 mg/m³ 8 hour(s).

Brazil

Molybdenum disulfide

ACGIH TLV (United States, 1/2006).

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

OSHA PEL (United States, 11/2006).

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

Graphite

ACGIH TLV (United States, 1/2006).

TWA: 2 mg/m³ 8 hour(s). Form: Dust

NIOSH REL (United States, 12/2001).

TWA: 2.5 mg/m³ 10 hour(s). Form: Respirable fraction

OSHA PEL Z3 (United States, 9/2005).

TWA: 15 MPPCF 8 hour(s).

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures

: If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures

: Use only with adequate ventilation. If user operations generate dust, fumes, gas, 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 MSHA/NIOSH-approved self-contained breathing apparatus or equivalent and full protective gear.
- Hygiene measures** : 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.
- Environmental exposure controls** : 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.

9 . Physical and chemical properties

- Physical state** : Semi-solid (grease).
- Color** : Black.
- Specific gravity** : >0.8
- Flash point** : Open cup: >230°C (446°F) (Cleveland.).

10 . Stability and reactivity

- Stability and reactivity** : The product is stable.
- Conditions of instability** : None known.
- Incompatibility with various substances** : Reactive or incompatible with the following materials: oxidizing materials, reducing materials, organic materials, metals, acids, alkalis and moisture.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Hazardous polymerization** : Will not occur.
- Conditions of reactivity** : None known.

11 . Toxicological information

Toxicity data

Product/ingredient name	Test / Route	Species	Result
Molybdenum disulfide	LD50 Dermal	Rat	>2 g/kg
	LD50 Oral	Rat	>2 g/kg
N-Phenyl-1-naphthylamine	LD50 Oral	Rat	1625 mg/kg
ROYCO 22MS	LD50 Oral	Rat	>5000 mg/kg

Acute Effects

- Eyes** : Irritating to eyes.
- Skin** : Irritating to skin. May cause sensitization by skin contact.
- Inhalation** : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Ingestion** : No known significant effects or critical hazards.

Potential chronic health effects : **CARCINOGENIC EFFECTS:** Classified 2A (Probable for human.) by IARC [Sodium nitrite].
MUTAGENIC EFFECTS: Not applicable.
TERATOGENIC EFFECTS: Not applicable.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Ecotoxicity data

Product/ingredient name	Species	Test	Exposure	Result
Sodium nitrite	Fish	Mortality	96 hours	Acute LC50 0.19 mg/L
	Fish	Mortality	96 hours	Acute LC50 0.18 mg/L
	Fish	Mortality	96 hours	Acute LC50 0.17 mg/L
	Fish	Mortality	96 hours	Acute LC50 0.15 mg/L
	Fish	Mortality	96 hours	Acute LC50 0.14 mg/L
	Fish	Mortality	96 hours	Acute LC50 0.11 mg/L

Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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 local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

NAERG : Not applicable.

Regulatory information

UN/ IMDG/ IATA DOT/ TDG : Not regulated.

15 . Regulatory information

United States

HCS Classification : Irritating material
Sensitizing material

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.; Acetic acid, calcium salt

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; Acetic acid, calcium salt: Delayed (chronic) 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** :
- Connecticut Carcinogen Reporting:** None of the components are listed.
 - Connecticut Hazardous Material Survey:** None of the components are listed.
 - Florida substances:** None of the components are listed.
 - Illinois Chemical Safety Act:** None of the components are listed.
 - Illinois Toxic Substances Disclosure to Employee Act:** None of the components are listed.
 - Louisiana Reporting:** None of the components are listed.
 - Louisiana Spill:** None of the components are listed.
 - Massachusetts Spill:** None of the components are listed.
 - Massachusetts Substances:** The following components are listed: Molybdenum disulfide; Graphite, natural.;Sodium nitrite
 - Michigan Critical Material:** None of the components are listed.
 - Minnesota Hazardous Substances:** None of the components are listed.
 - New Jersey Hazardous Substances:** The following components are listed: Molybdenum disulfide;Sodium nitrite
 - New Jersey Spill:** None of the components are listed.
 - New Jersey Toxic Catastrophe Prevention Act:** None of the components are listed.
 - New York Acutely Hazardous Substances:** The following components are listed: Sodium nitrite
 - New York Toxic Chemical Release Reporting:** None of the components are listed.
 - Pennsylvania RTK Hazardous Substances:** The following components are listed: Graphite, natural.;Sodium nitrite
 - Rhode Island Hazardous Substances:** None of the components are listed.

California Prop. 65 :

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.

Canada

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



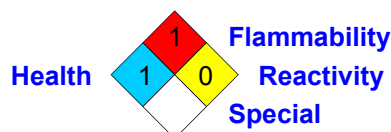
Canadian lists : CEPA DSL: All components listed.

DSL ; NDSL : All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Mexico

Classification :



HAZARD RATINGS

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

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

The Restriction of Hazardous Substances in Electrical and Electronic Equipment (ROHS) Directive (2002/95/EC)

: In compliance.

16 . Other information

Label requirements : CAUSES EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.

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

Health	1
Flammability	1
Physical hazards	0
Personal protection	B

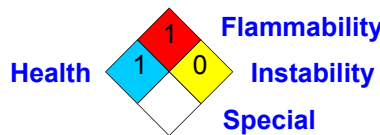
HAZARD RATINGS

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

See section 8 for more detailed information on personal protection.

The customer is responsible for determining the PPE code for this material.

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 : 5

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