DOW CORNING

Dow Corning (Shanghai) Management Co. Ltd.
Material Safety Data Sheet

Last Revision Date: 2010/03/04
Version No.: GHS 1.0

MOLYKOTE(R) 7409 ANTI-FRICTION COATING

1. IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

1.1 Product Name: MOLYKOTE(R) 7409 ANTI-FRICTION COATING

1.2 Product Code: 01596942

1.3 Chemical Classification: Mixture of inorganic and organic compounds

1.4 Recommended Product Usage and Limited Use: Lubricant

1.5 Company Details

Manufacturer/Supplier: Dow Corning (Shanghai) Management Co. Ltd.
Address: No.268, De Lin Road, WaiGaoQiao Free Trade Zone, Shanghai 200131, China
Telephone Number: 400 880 7110 **Fax Number:** (86 21) 57741162
Email Address: China.info@dowcorning.com
Emergency Telephone Number: (86 512) 56732049

1.6 First Issuing Date: 2010/03/04

1.7 Chemical Emergency, Spill, Leak & Fire Exposure during Transport: CHEMTREC International call: 1 (703) 527-3887; North America: 800-424-9300 (collect calls accepted)

2. HAZARD IDENTIFICATION

2.1 Hazard Classification:
Flammable liquid: Category 3
Acute toxicity (dermal): Category 5
Acute toxicity (inhalation - vapour): Category 5
Skin corrosion/irritation: Category 2
Serious eye damage/eye irritation: Category 2A
Carcinogenicity: Category 2
Specific target organ toxicity - single exposure (inhalation - dust and mist): Category 3 (respiratory tract irritation)
Acute aquatic hazard: Category 2

2.2 Label Elements Including Precautionary Statements

Symbol:

Signal Word: Warning

Hazard Risk Statement:
Flammable liquid and vapour.
May be harmful in contact with skin.
May be harmful if inhaled.
Causes skin irritation.
Causes serious eye irritation.
Suspected of causing cancer.
May cause respiratory irritation if inhaled.

Toxic to aquatic life.

Precautionary Statement: Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from ignition sources such as heat/sparks/open flame - No smoking.
Use explosion-proof electrical/ventilating/lighting equipment. Take precautionary measures against static discharge.
Do not breathe spray or mist.
Wear suitable protective clothing, gloves and eye/face protection.
Wash hands thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Avoid release to the environment.
In case of fire, use appropriate fire-fighting measures for extinguishing.
In case of fire and/or explosion do not breathe fumes.
IF INHALED: Get medical attention/advice if you feel unwell.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF exposed or concerned: Get medical attention/advice.
Take off contaminated clothing and wash before reuse.
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Dispose of in accordance with local regulations.

2.3 Other Hazard: None known.

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Chemical characterization: Mixture

3.2 Hazardous Ingredients

Chemical Name	CAS No.	% (w/w)
N-Methylpyrrolidone	872-50-4	30 - 60
Xylene	1330-20-7	10 - <30
Molybdenum disulfide	1317-33-5	10 - <30
Ethylbenzene	100-41-4	<10
Graphite	7782-42-5	<10

4. FIRST AID MEASURES

4.1 First Aid Measures

Eyes: Immediately flush with water for 15 minutes. Get medical attention.
Skin: Remove from skin and wash thoroughly with soap and water or waterless cleanser. Get medical attention if irritation or other ill effects develop or persist.
Inhalation: Remove to fresh air. Get medical attention if ill effects persist.
Oral: Get medical attention.

	Comments:	Treat according to person's condition and specifics of exposure.
4.2	**Important Symptoms and Hazard Effects:**	May be harmful if inhaled or in contact with skin. Causes skin and serious eye irritation. May cause respiratory irritation if inhaled.

4.3 Personal Protection for First Aid or Rescue Personnel

Respiratory Protection:	Use self-contained breathing apparatus (SCBA) or other supplied-air respirator.
Eye Protection:	Use full face respirator.
Skin Protection:	Wash at mealtime and end of shift. Contaminated clothing and shoes should be removed as soon as practical and thoroughly cleaned before reuse. Chemical protective gloves are recommended.

4.4	**Note to physicians:**	Treat symptomatically. For further information, the medical practitioner should contact Dow Corning (Shanghai) Management Co., Ltd.

5. FIRE-FIGHTING MEASURES

5.1	**Suitable Extinguishing Media:**	On large fires use dry chemical, foam or water spray. On small fires use carbon dioxide (CO2), dry chemical or water spray. Water can be used to cool fire exposed containers.
5.2	**Unsuitable Extinguishing Media:**	None established.
5.3	**Specific Hazards:**	Vapors are heavier than air and may travel to a source of ignition and flash back. Static electricity will accumulate and may ignite vapors. Prevent a possible fire hazard by bonding and grounding or inert gas purge.
5.4	**Special Fire Fighting Procedures:**	Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.
5.5	**Special protective equipment for the Fire Fighters:**	Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals.

6. ACCIDENTAL RELEASE MEASURES

6.1	**Personal Precautions:**	Avoid skin and eye contact. Avoid breathing vapor, mist, dust, or fumes. Keep container closed. Do not take internally.
6.2	**Environmental Precautions:**	Do not empty into drains. Prevent from spreading or entering into drains, ditches or rivers by using sand, earth or other appropriate barriers.
6.3	**Methods for Cleaning up:**	Remove possible ignition sources. Determine whether to evacuate or isolate the area according to your local emergency plan. Observe all personal protective equipment recommendations described in this MSDS. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbant. Dispose of saturated absorbant or cleaning materials appropriately,

since spontaneous heating may occur. Laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which laws and regulations are applicable.

7. HANDLING AND STORAGE

7.1 Handling Precautions: Use with adequate ventilation. Avoid skin and eye contact. Avoid breathing vapor, mist, dust, or fumes. Keep container closed. Do not take internally. Exercise good industrial hygiene practice. Wash after handling, especially before eating, drinking or smoking.

7.2 Storage Conditions: Static electricity will accumulate and may ignite vapors. Prevent a possible fire hazard by bonding and grounding or inert gas purge. Keep container closed and away from heat, sparks, and flame.

7.3 Unsuitable Packaging Materials: None established.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Industrial Hygiene Standards:

Ingredients	CAS No.	Exposure Limits
N-Methylpyrrolidone	872-50-4	AIHA WEEL: TWA 10 ppm, skin.
Xylene	1330-20-7	China: TWA 50 mg/m3. STEL 100 mg/m3. OSHA PEL (final rule) and ACGIH TLV: TWA 100 ppm, STEL 150 ppm.
Molybdenum disulfide	1317-33-5	China: TWA 6 mg/m3 as Mo. Observe molybdenum (insoluble compounds) limits. OSHA PEL (final rule): TWA 10 mg/m3 total dust. ACGIH TLV: TWA 10 mg/m3 inhalable fraction, 3 mg/m3 respirable fraction.
Ethylbenzene	100-41-4	China: TWA 100 mg/m3. STEL 150 mg/m3. Possible human carcinogen.. OSHA PEL (final rule): TWA 100 ppm, 435 mg/m3. ACGIH TLV: TWA 100 ppm, STEL 125 ppm.
Graphite	7782-42-5	China: TWA 2 mg/m3 Respirable dust. TWA 4 mg/m3 Total dust. OSHA PEL (final rule): TWA 15 mg/m3 total dust, 5 mg/m3 respirable fraction. ACGIH TLV: TWA 2 mg/m3 respirable fraction.

8.2 Engineering Controls

Local Ventilation: Recommended.
General Ventilation: Recommended.

8.3 Personal Protective Equipment for Routine Handling

Respiratory protection: Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. IH personnel can assist in judging the adequacy of existing engineering controls.
Suitable Respirator: Organic Vapor/Dust/Mist Type.
Eye protection: Use chemical worker's goggles.
Hand protection: Chemical protective gloves should be worn.

	Skin protection:	Wash at mealtime and end of shift. Contaminated clothing and shoes should be removed as soon as practical and thoroughly cleaned before reuse. Chemical protective gloves are recommended.
	Hygiene Measures:	Exercise good industrial hygiene practice. Wash after handling, especially before eating, drinking or smoking.

8.4 Personal Protective Equipment for Spills

Respiratory protection:	Use self-contained breathing apparatus (SCBA) or other supplied-air respirator.
Eye protection:	Use full face respirator.
Skin protection:	Wash at mealtime and end of shift. Contaminated clothing and shoes should be removed as soon as practical and thoroughly cleaned before reuse. Chemical protective gloves are recommended.
Precautionary Measures:	Avoid skin and eye contact. Avoid breathing vapor, mist, dust, or fumes. Keep container closed. Do not take internally. Use reasonable care.
Comments:	If this product is heated to > 150 degrees C, trace quantities of formaldehyde may be released, and adequate ventilation is required.

Note: These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1	**Physical Form:**	Liquid
9.2	**Color:**	Gray
9.3	**Odor:**	Aromatic odor
9.4	**pH:**	Not determined.
9.5	**Melting Point:**	Not determined.
9.6	**Boiling point/range:**	> 100 °C
9.7	**Flash Point:**	28 °C(Pensky-Martens Closed Cup)
9.8	**Explosive Limit:**	Not determined.
9.9	**Vapor Pressure @ 25°C:**	Not determined.
9.10	**Vapour Density (air=1):**	Not determined.
9.11	**Specific Gravity:**	1.1 g/cm3
9.12	**Water Solubility:**	Not determined.
9.13	**Partition Coefficient (n-Octanol/Water):**	Not determined.
9.14	**Autoignition temperature:**	Not determined.
9.15	**Decomposition Temperature :**	Not determined.
9.16	**Odor Threshold:**	Not determined.

MOLYKOTE(R) 7409 ANTI-FRICTION COATING

9.17 Evaporation Rate: Not determined.

9.18 Flammability (Solid, Gas): Not applicable.

The above information is not intended for use in preparing product specifications. Contact Dow Corning before writing specifications.

10. STABILITY AND REACTIVITY

10.1 Stability: Stable.

10.2 Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

10.3 Conditions to Avoid: None.

10.4 Materials to Avoid: Can react with strong oxidising agents.

10.5 Hazardous Decomposition Products: Carbon oxides and traces of incompletely burned carbon compounds. Formaldehyde. Nitrogen oxides. Metal oxides. Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

11.1 Route of Exposure: Inhalation, skin contact and accidental ingestion.

11.2 Signs and Symptoms of Overexposure: May be harmful if inhaled or in contact with skin. Causes skin and serious eye irritation. May cause respiratory irritation if inhaled.

11.3 Acute Toxicity:

Chemical Name	CAS No.	LD50 (Oral)	LD50 (Dermal)	LC50 (Inhalation)
N-Methylpyrrolidone	872-50-4	3,600 mg/kg (Rat)	7,000 mg/kg (Rat)	> 5.1 mg/l (Rat; 4hr dust/mist)
Xylene	1330-20-7	4,300 mg/kg (Rat)	-	6350 PPM (Rat; 4hr vapor)
Ethylbenzene	100-41-4	3,500 mg/kg (Rat)	15,354 mg/kg (Rabbit)	17.2 mg/l (Rat; 4hr vapor)

Eyes: Vapor may cause eye irritation. Direct contact may cause severe irritation.
Skin: May be harmful in contact with skin. May cause moderate irritation.
Ingestion: Low ingestion hazard in normal use.
Inhalation: May be harmful if inhaled. May cause respiratory irritation. Vapor overexposure may cause drowsiness.

11.4 Chronic Toxicity

Skin: Overexposure may injure internally if absorbed. Repeated or prolonged contact may cause defatting and drying of skin which may result in skin irritation and dermatitis.
Ingestion: Repeated ingestion or swallowing large amounts may injure internally.
Inhalation: Prolonged or repeated exposure by inhalation may injure internally.

11.5 Other Health Hazard Information: Suspected of causing cancer.
Inhalation of fumes may result in metal fume fever, a flu-like illness with symptoms of

metallic taste, fever and chills, aches, chest tightness, and cough.

The above listed potential effects of overexposure are based on actual data, the results of studies performed upon similar compositions, component data, and/or expert review of the products.

12. ECOLOGICAL INFORMATION

12.1 Aquatic and Terrestrial Ecotoxicity

Ecotoxicity Effects:

Acute: Toxic to aquatic life.

Chronic: No adverse effects on aquatic organisms are predicted.

Fate and Effects in Waste Water Treatment Plants: No adverse effects on bacteria are predicted.

12.2 Persistence and Degradability

Degradation: The organic solvents in the product are biodegradable.

12.3 Bioaccumulative Potential

Bioaccumulation: No bioaccumulation potential.

12.4 Mobility in Soil: Organic solvents may evaporate into the atmosphere, where they degrade.

12.5 Additional Environmental Information: No specific information is available.

13. DISPOSAL CONSIDERATIONS

13.1 Product Disposal: Dispose of in accordance with local regulations.

13.2 Packaging Disposal: Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

14.1 Road and Rail Transport

UN No.: 1993
Proper Shipping Name: Flammable liquid, n.o.s.
Technical Name: Xylene / Ethylbenzene
Class: 3
Packing Group: III
Hazard Label(s): Flammable Liquid

14.2 Sea Transport (IMDG)

UN No.: 1993
Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.
Technical Name: Xylene / Ethylbenzene

	Class:	3
	Packing Group:	III
	Marine Pollutant (Yes/No):	No
	Hazard Label(s):	flammable liquid

14.3 **Air Transport (IATA)**

UN No.:	1993
Proper Shipping Name:	Flammable liquid, n.o.s.
Technical Name:	Xylene / Ethylbenzene
Class:	3
Packing Group:	III
Hazard Label(s):	Flammable Liquid

14.4 **Special Requirements and Additional Information :** None.

15. REGULATORY INFORMATION

15.1 **Applicable Laws:** Provisions of the Regulations for the Safe Handling of Chemicals in the Workplace
The Regulations for Safe Management of Dangerous Chemicals (promulgated by the PRC Government on 1-2-2002.)
Code of Practice for Safe Management of Dangerous Chemicals (Ministry of Labor, No.677-1992).
General rule for classification and hazard communication of chemicals [GB 13690-2009]

15.2 **Chemical Inventories**

EINECS:	All ingredients listed or exempt.
TSCA:	All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.
AICS:	All ingredients listed or exempt.
IECSC:	All ingredients listed or exempt.
ENCS/ISHL:	All components are listed on ENCS/ISHL or its exempt rule.
DSL:	All chemical substances in this material are included on or exempted from the DSL.
KECL:	One or more ingredients are not listed or exempt or identified.
HSNO:	All ingredients listed or exempt.
PICCS:	One or more ingredients are not listed or exempt.

16. OTHER INFORMATION

16.1 **Contact Point:** Technical Information Center 400 880 7110

16.2 **Prepared by:** Dow Corning (Shanghai) Management Co. Ltd.

Legend:

- No specific information available

This information is offered in good faith as typical values and not as a product specification. No warranty, expressed or

implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

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