

MOLYKOTE(R) D-321 R SPRAY

Version 5.1 Revision Date: 03/18/2017 SDS Number: 1334744-00007 Date of last issue: 10/31/2016
Date of first issue: 02/17/2015

SECTION 1. IDENTIFICATION

Product name : MOLYKOTE(R) D-321 R SPRAY

Product code : 000000000001659766

Manufacturer or supplier's details

Company name of supplier : Dow Corning Corporation

Address : South Saginaw Road
Midland Michigan 48686

PO box : 65091

Telephone : (989) 496-6000

Emergency telephone : 24 Hour Emergency Telephone : (989) 496-5900
CHEMTREC : (800) 424-9300

Recommended use of the chemical and restrictions on use

Recommended use : Lubricants and lubricant additives

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with 29 CFR 1910.1200**

Flammable aerosols : Category 1

Gases under pressure : Dissolved gas

Specific target organ system-
mic toxicity - single exposure : Category 3

Specific target organ system-
mic toxicity - repeated exposure : Category 1 (Central nervous system)

GHS label elements

Hazard pictograms : 

Signal Word : Danger

Hazard Statements : H222 Extremely flammable aerosol.
H280 Contains gas under pressure; may explode if heated.
H336 May cause drowsiness or dizziness.
H372 Causes damage to organs (Central nervous system)
through prolonged or repeated exposure.

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Precautionary Statements

: **Prevention:**

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
 P211 Do not spray on an open flame or other ignition source.
 P251 Pressurized container: Do not pierce or burn, even after use.
 P260 Do not breathe spray.
 P264 Wash skin thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P271 Use only outdoors or in a well-ventilated area.

Response:

P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
 P314 Get medical advice/ attention if you feel unwell.

Storage:

P405 Store locked up.
 P410 + P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/ 122 °F.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture
 Chemical nature : Molybdenum disulfide aerosol

Hazardous ingredients

Chemical name	CAS-No.	Concentration (% w/w)
Butane	106-97-8	>= 49 - <= 67
n-Butyl acetate	123-86-4	>= 8 - <= 12
Propane	74-98-6	>= 8 - <= 12
Naphtha (petroleum), hydrodesulfurized heavy	64742-82-1	>= 7 - <= 11
Molybdenum sulfide	1317-33-5	>= 5 - <= 7
Polybutyl titanate	9022-96-2	>= 3 - <= 4
Graphite	7782-42-5	>= 1.4 - <= 1.8
Ethylbenzene	100-41-4	>= 0.12 - <= 0.16

SECTION 4. FIRST AID MEASURES

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.

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- When symptoms persist or in all cases of doubt seek medical advice.
- If inhaled : If inhaled, remove to fresh air.
Get medical attention.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water.
Remove contaminated clothing and shoes.
Get medical attention.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.
- In case of eye contact : Flush eyes with water as a precaution.
Get medical attention if irritation develops and persists.
- If swallowed : If swallowed, DO NOT induce vomiting.
Get medical attention.
Rinse mouth thoroughly with water.
- Most important symptoms and effects, both acute and delayed : May cause drowsiness or dizziness.
Causes damage to organs through prolonged or repeated exposure.
- Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists.
- Notes to physician : Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : None known.
- Specific hazards during fire fighting : Flash back possible over considerable distance.
Vapors may form explosive mixtures with air.
Exposure to combustion products may be a hazard to health.
If the temperature rises there is danger of the vessels bursting due to the high vapor pressure.
- Hazardous combustion products : Carbon oxides
Metal oxides
Sulfur oxides
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.

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Evacuate area.

Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Remove all sources of ignition. Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.
- Environmental precautions : Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Non-sparking tools should be used. Soak up with inert absorbent material. Suppress (knock down) gases/vapors/mists with a water spray jet. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. Local or national 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 regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

- Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Local/Total ventilation : Use with local exhaust ventilation. Use only in an area equipped with explosion proof exhaust ventilation.
- Advice on safe handling : Do not breathe vapors or spray mist. Do not swallow. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Handle in accordance with good industrial hygiene and safety practice. Keep away from water.

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Protect from moisture.
 Keep away from heat and sources of ignition.
 Take precautionary measures against static discharges.
 Take care to prevent spills, waste and minimize release to the environment.

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

Conditions for safe storage : Store locked up.
 Keep in a cool, well-ventilated place.
 Store in accordance with the particular national regulations.
 Do not pierce or burn, even after use.
 Keep cool. Protect from sunlight.

Materials to avoid : Do not store with the following product types:
 Self-reactive substances and mixtures
 Organic peroxides
 Oxidizing agents
 Flammable solids
 Pyrophoric liquids
 Pyrophoric solids
 Self-heating substances and mixtures
 Substances and mixtures which in contact with water emit flammable gases
 Explosives
 Gases

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Butane	106-97-8	TWA	800 ppm 1,900 mg/m ³	NIOSH REL
		STEL	1,000 ppm	ACGIH
n-Butyl acetate	123-86-4	TWA	150 ppm 710 mg/m ³	OSHA Z-1
		TWA	150 ppm 710 mg/m ³	NIOSH REL
		ST	200 ppm 950 mg/m ³	NIOSH REL
		TWA	50 ppm	ACGIH
Propane	74-98-6	STEL	150 ppm	ACGIH
		TWA	1,000 ppm 1,800 mg/m ³	NIOSH REL
Naphtha (petroleum), hydrodesulfurized heavy	64742-82-1	TWA	1,000 ppm 1,800 mg/m ³	OSHA Z-1
		TWA	500 ppm 2,000 mg/m ³	OSHA Z-1
Molybdenum sulfide	1317-33-5	TWA (total dust)	15 mg/m ³ (Molybdenum)	OSHA Z-1
		TWA (Inhal-)	10 mg/m ³	ACGIH

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		able fraction)	(Molybdenum)	
		TWA (Respirable fraction)	3 mg/m ³ (Molybdenum)	ACGIH
Graphite	7782-42-5	TWA (Respirable)	2.5 mg/m ³	NIOSH REL
		TWA (Respirable fraction)	2 mg/m ³	ACGIH
		TWA (Dust)	15 Million particles per cubic foot	OSHA Z-3
Ethylbenzene	100-41-4	TWA	20 ppm	ACGIH
		TWA	100 ppm 435 mg/m ³	OSHA Z-1
		TWA	100 ppm 435 mg/m ³	NIOSH REL
		ST	125 ppm 545 mg/m ³	NIOSH REL

Hazardous components without workplace control parameters

Ingredients	CAS-No.
Polybutyl titanate	9022-96-2

Occupational exposure limits of decomposition products

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Butan-1-ol	71-36-3	TWA	20 ppm	ACGIH
		C	50 ppm 150 mg/m ³	NIOSH REL
		TWA	100 ppm 300 mg/m ³	OSHA Z-1

Biological occupational exposure limits

Ingredients	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Ethylbenzene	100-41-4	Sum of mandelic acid and phenyl glyoxylic acid	Urine	End of shift (As soon as possible after exposure ceases)	0.15 g/g creatinine	ACGIH BEI

Engineering measures : Processing may form hazardous compounds (see section 10).
 Minimize workplace exposure concentrations.
 Use only in an area equipped with explosion proof exhaust ventilation.
 Use with local exhaust ventilation.

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Personal protective equipment

- Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.
- Hand protection
Material : Chemical-resistant gloves
- Remarks : Choose gloves to protect hands against chemicals depending on the concentration specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Take note that the product is flammable, which may impact the selection of hand protection. Wash hands before breaks and at the end of workday.
- Eye protection : Wear the following personal protective equipment:
Safety glasses
- Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Wear the following personal protective equipment:
Flame retardant antistatic protective clothing.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).
- Hygiene measures : Ensure that eye flushing systems and safety showers are located close to the working place.
When using do not eat, drink or smoke.
Wash contaminated clothing before re-use.
For further information regarding the use of silicones / organic oils in consumer aerosol applications, please refer to the guidance document regarding the use of these type of materials in consumer aerosol applications that has been developed by the silicone industry (www.SEHSC.com) or contact the Dow Corning customer service group.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : Aerosol containing a dissolved gas

SAFETY DATA SHEET

DOW CORNING

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Color : black

Odor : solvent

Odor Threshold : No data available

pH : Not applicable

Melting point/freezing point : No data available

Initial boiling point and boiling range : Not applicable

Flash point : Not applicable

Evaporation rate : Not applicable

Flammability (solid, gas) : Extremely flammable aerosol.

Self-ignition : The substance or mixture is not classified as pyrophoric. The substance or mixture is not classified as self heating.

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Vapor pressure : No data available

Relative vapor density : No data available

Relative density : 1.05

Solubility(ies)
Water solubility : No data available

Partition coefficient: n-octanol/water : No data available

Autoignition temperature : No data available

Decomposition temperature : No data available

Viscosity
Viscosity, dynamic : Not applicable

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Molecular weight : No data available

Particle size : Not applicable

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SECTION 10. STABILITY AND REACTIVITY

- Reactivity : Not classified as a reactivity hazard.
- Chemical stability : Stable under normal conditions.
- Possibility of hazardous reactions : Extremely flammable aerosol.
Vapors may form explosive mixture with air.
If the temperature rises there is danger of the vessels bursting due to the high vapor pressure.
Can react with strong oxidizing agents.
Hazardous decomposition products will be formed upon contact with water or humid air.
- Conditions to avoid : Exposure to moisture.
Heat, flames and sparks.
- Incompatible materials : Oxidizing agents
Water

Hazardous decomposition products

Contact with water or humid air : Butan-1-ol

SECTION 11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure**

Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Not classified based on available information.

Ingredients:**Butane:**

Acute inhalation toxicity : LC50 (Rat): 658 mg/l
Exposure time: 4 h
Test atmosphere: vapor

n-Butyl acetate:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 21.1 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg
Method: OECD Test Guideline 402

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Propane:

Acute inhalation toxicity : LC50 (Rat): > 800000 ppm
Exposure time: 15 min
Test atmosphere: gas

Naphtha (petroleum), hydrodesulfurized heavy:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat): > 13.1 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rat): > 4,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Based on data from similar materials

Molybdenum sulfide:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 401
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 2.82 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Graphite:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 401
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 2 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity

Ethylbenzene:

Acute oral toxicity : LD50 (Rat): 3,500 mg/kg

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Acute inhalation toxicity : LC50 (Rat): 17.2 mg/l
Exposure time: 4 h
Test atmosphere: vapor

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg

Skin corrosion/irritation

Not classified based on available information.

Ingredients:**n-Butyl acetate:**

Assessment: Repeated exposure may cause skin dryness or cracking.

Naphtha (petroleum), hydrodesulfurized heavy:

Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation
Remarks: Based on data from similar materials

Assessment: Repeated exposure may cause skin dryness or cracking.

Molybdenum sulfide:

Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Graphite:

Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Ingredients:**n-Butyl acetate:**

Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405

Naphtha (petroleum), hydrodesulfurized heavy:

Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405
Remarks: Based on data from similar materials

Molybdenum sulfide:

Species: Rabbit
Result: No eye irritation

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Method: OECD Test Guideline 405

Polybutyl titanate:

Result: Irritation to eyes, reversing within 21 days

Graphite:

Species: Rabbit

Result: No eye irritation

Ethylbenzene:

Species: Rabbit

Result: No eye irritation

Respiratory or skin sensitization**Skin sensitization**

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Ingredients:**n-Butyl acetate:**

Test Type: Buehler Test

Routes of exposure: Skin contact

Species: Guinea pig

Method: OECD Test Guideline 406

Result: negative

Naphtha (petroleum), hydrodesulfurized heavy:

Test Type: Maximization Test

Routes of exposure: Skin contact

Species: Guinea pig

Method: OECD Test Guideline 406

Result: negative

Remarks: Based on data from similar materials

Molybdenum sulfide:

Test Type: Maximization Test

Routes of exposure: Skin contact

Species: Guinea pig

Result: negative

Graphite:

Test Type: Local lymph node assay (LLNA)

Routes of exposure: Skin contact

Species: Mouse

Result: negative

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Ethylbenzene:

Test Type: Human repeat insult patch test (HRIPT)

Routes of exposure: Skin contact

Result: negative

Germ cell mutagenicity

Not classified based on available information.

Ingredients:**Butane:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo
cytogenetic assay)
Species: Rat
Application Route: inhalation (gas)
Method: OECD Test Guideline 474
Result: negative
Remarks: Based on data from similar materials

n-Butyl acetate:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

: Test Type: Chromosome aberration test in vitro
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo
cytogenetic assay)
Species: Mouse
Application Route: Ingestion
Method: OECD Test Guideline 474
Result: negative

Propane:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo
cytogenetic assay)
Species: Rat
Application Route: inhalation (gas)
Method: OECD Test Guideline 474
Result: negative

Naphtha (petroleum), hydrodesulfurized heavy:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Result: negative
Remarks: Based on data from similar materials

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Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Inhalation
Result: negative
Remarks: Based on data from similar materials

Molybdenum sulfide:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Graphite:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Ethylbenzene:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Result: negative

: Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

Genotoxicity in vivo : Test Type: Unscheduled DNA synthesis (UDS) test with mammalian liver cells in vivo
Species: Mouse
Application Route: Inhalation
Method: OECD Test Guideline 486
Result: negative

Carcinogenicity

Not classified based on available information.

Ingredients:**Naphtha (petroleum), hydrodesulfurized heavy:**

Species: Rat
Application Route: inhalation (vapor)
Exposure time: 13 weeks
Result: negative
Remarks: Based on data from similar materials

Molybdenum sulfide:

Species: Rat
Application Route: Ingestion
Exposure time: 232 days
Result: negative

Ethylbenzene:

Species: Rat

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Application Route: Inhalation
 Exposure time: 104 weeks
 Result: positive
 Remarks: The mechanism or mode of action may not be relevant in humans.

IARC Group 2B: Possibly carcinogenic to humans

Ethylbenzene 100-41-4

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.

Ingredients:**Butane:**

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
 Species: Rat
 Application Route: inhalation (gas)
 Method: OECD Test Guideline 422
 Result: negative

Effects on fetal development : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
 Application Route: inhalation (gas)
 Method: OECD Test Guideline 422
 Result: negative

n-Butyl acetate:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
 Species: Rat
 Application Route: inhalation (vapor)
 Method: OECD Test Guideline 416
 Result: negative

Propane:

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
 Species: Rat
 Application Route: inhalation (gas)
 Method: OECD Test Guideline 422
 Result: negative

Effects on fetal development : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
 Species: Rat

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Application Route: inhalation (gas)
Method: OECD Test Guideline 422
Result: negative

Naphtha (petroleum), hydrodesulfurized heavy:

Effects on fertility : Test Type: Reproduction/Developmental toxicity screening test
Species: Rat
Application Route: inhalation (vapor)
Result: negative
Remarks: Based on data from similar materials

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: inhalation (vapor)
Result: negative
Remarks: Based on data from similar materials

Graphite:

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 422
Result: negative

Effects on fetal development : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 422
Result: negative

Ethylbenzene:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: inhalation (vapor)
Method: OECD Test Guideline 415
Result: negative

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: Inhalation
Method: OECD Test Guideline 414
Result: negative

STOT-single exposure

May cause drowsiness or dizziness.

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Ingredients:**Butane:**

Assessment: May cause drowsiness or dizziness.

n-Butyl acetate:

Assessment: May cause drowsiness or dizziness.

Propane:

Assessment: May cause drowsiness or dizziness.

Naphtha (petroleum), hydrodesulfurized heavy:

Assessment: May cause drowsiness or dizziness.

STOT-repeated exposure

Causes damage to organs (Central nervous system) through prolonged or repeated exposure.

Ingredients:**Naphtha (petroleum), hydrodesulfurized heavy:**

Target Organs: Central nervous system

Assessment: Causes damage to organs through prolonged or repeated exposure.

Ethylbenzene:

Routes of exposure: inhalation (vapor)

Target Organs: Auditory system

Assessment: Shown to produce significant health effects in animals at concentrations of >0.2 to 1 mg/l/6h/d.

Repeated dose toxicity**Ingredients:****Butane:**

Species: Rat

NOAEL: 9000 ppm

Application Route: inhalation (gas)

Exposure time: 6 Weeks

Method: OECD Test Guideline 422

n-Butyl acetate:

Species: Rat

NOAEL: 2.4 mg/l

Application Route: inhalation (vapor)

Exposure time: 90 Days

Propane:

Species: Rat

NOAEL: 7.214 mg/l

Application Route: inhalation (gas)

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Exposure time: 6 Weeks
Method: OECD Test Guideline 422

Naphtha (petroleum), hydrodesulfurized heavy:

Species: Rat
NOAEL: 2.34 mg/l
LOAEL: 4.67 mg/l
Application Route: inhalation (vapor)
Exposure time: 6 Months
Method: OECD Test Guideline 413
Remarks: Based on data from similar materials

Graphite:

Species: Rat
NOAEL: 12 mg/m³
Application Route: inhalation (dust/mist/fume)
Exposure time: 28 Days
Method: OECD Test Guideline 412

Ethylbenzene:

Species: Rat, female
LOAEL: 75 ppm
Application Route: inhalation (vapor)
Exposure time: 104 Weeks

Aspiration toxicity

Not classified based on available information.

Ingredients:**Naphtha (petroleum), hydrodesulfurized heavy:**

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Ethylbenzene:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Experience with human exposure**Ingredients:****Naphtha (petroleum), hydrodesulfurized heavy:**

Inhalation : Target Organs: Central nervous system
Symptoms: Dizziness, Headache, Neurological disorders

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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ingredients:**n-Butyl acetate:**

- Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 18 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 44 mg/l
Exposure time: 48 h
- Toxicity to algae : ErC50 (Desmodesmus subspicatus (green algae)): 674.7 mg/l
Exposure time: 72 h
- NOEC (Desmodesmus subspicatus (green algae)): 200 mg/l
Exposure time: 72 h
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 23 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211
- Toxicity to microorganisms : IC50 (Protozoa): 356 mg/l
Exposure time: 40 h

Naphtha (petroleum), hydrodesulfurized heavy:

- Toxicity to fish : LL50 (Oncorhynchus mykiss (rainbow trout)): 10 - 30 mg/l
Exposure time: 96 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials
- Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 10 - 22 mg/l
Exposure time: 48 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials
- Toxicity to algae : EL50 (Pseudokirchneriella subcapitata (green algae)): 4.6 - 10 mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials
- NOELR (Pseudokirchneriella subcapitata (green algae)): 0.22 mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials
- Toxicity to daphnia and other : NOELR (Daphnia magna (Water flea)): 0.097 mg/l

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aquatic invertebrates (Chronic toxicity)

Exposure time: 21 d
Remarks: Based on data from similar materials

Molybdenum sulfide:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 644.2 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 130.9 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 289.2 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): > 17 mg/l
Exposure time: 12 Months
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Ceriodaphnia dubia (water flea)): 156.5 mg/l
Exposure time: 21 d
Remarks: Based on data from similar materials

Toxicity to microorganisms : NOEC: > 950 mg/l
Exposure time: 17 d
Remarks: Based on data from similar materials

Graphite:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50: > 1,012.5 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Ethylbenzene:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 4.2 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

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- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.8 - 2.4 mg/l
Exposure time: 48 h
- Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 5.4 mg/l
Exposure time: 72 h
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Ceriodaphnia dubia (water flea)): 0.96 mg/l
Exposure time: 7 d
- Toxicity to microorganisms : EC50 (Nitrosomonas sp.): 96 mg/l
Exposure time: 24 h
Method: OECD Test Guideline 209

Persistence and degradability**Ingredients:****Butane:**

- Biodegradability : Result: Readily biodegradable.
Biodegradation: 100 %
Exposure time: 385.5 h
Remarks: Based on data from similar materials

n-Butyl acetate:

- Biodegradability : Result: Readily biodegradable.
Biodegradation: 96 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

Propane:

- Biodegradability : Result: Readily biodegradable.
Biodegradation: 100 %
Exposure time: 385.5 h
Remarks: Based on data from similar materials

Naphtha (petroleum), hydrodesulfurized heavy:

- Biodegradability : Result: Readily biodegradable.
Biodegradation: 74.7 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
Remarks: Based on data from similar materials

Polybutyl titanate:

- Biodegradability : Result: Not readily biodegradable.

Ethylbenzene:

- Biodegradability : Result: Readily biodegradable.
Biodegradation: 70 - 80 %

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Exposure time: 28 d

Bioaccumulative potential**Ingredients:****Butane:**

Partition coefficient: n-octanol/water : log Pow: 2.31

n-Butyl acetate:

Partition coefficient: n-octanol/water : log Pow: 2.3

Naphtha (petroleum), hydrodesulfurized heavy:

Partition coefficient: n-octanol/water : log Pow: > 4
Remarks: Based on data from similar materials

Ethylbenzene:

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): < 100
Remarks: Based on data from similar materials

Partition coefficient: n-octanol/water : log Pow: 3.6

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Resource Conservation and Recovery Act (RCRA) : When a decision is made to discard this material as supplied, it is classified as a RCRA hazardous waste.

Waste Code : D001: Ignitability
D018

Waste from residues : Dispose of in accordance with local regulations.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
Empty containers retain residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death.
If not otherwise specified: Dispose of as unused product.

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Please ensure aerosol cans are sprayed completely empty
(including propellant)

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	: UN 1950
Proper shipping name	: AEROSOLS
Class	: 2.1
Packing group	: Not assigned by regulation
Labels	: 2.1

IATA-DGR

UN/ID No.	: UN 1950
Proper shipping name	: Aerosols, flammable
Class	: 2.1
Packing group	: Not assigned by regulation
Labels	: Flammable Gas
Packing instruction (cargo aircraft)	: 203
Packing instruction (passenger aircraft)	: 203

IMDG-Code

UN number	: UN 1950
Proper shipping name	: AEROSOLS
Class	: 2.1
Packing group	: Not assigned by regulation
Labels	: 2.1
EmS Code	: F-D, S-U
Marine pollutant	: no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

49 CFR

UN/ID/NA number	: UN 1950
Proper shipping name	: Aerosols
Class	: 2.1
Packing group	: Not assigned by regulation
Labels	: FLAMMABLE GAS
ERG Code	: 126
Marine pollutant	: no

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

SAFETY DATA SHEET

DOW CORNING

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Ingredients	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Xylene	1330-20-7	100	17543
n-Butyl acetate	123-86-4	5000	50000
Ethylbenzene	100-41-4	1000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Fire Hazard
Sudden Release of Pressure Hazard
Chronic Health Hazard
Acute Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Ethylbenzene	100-41-4	>= 0.12 - <= 0.16 %
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US State Regulations

Pennsylvania Right To Know

Butane	106-97-8
Propane	74-98-6
n-Butyl acetate	123-86-4
Naphtha (petroleum), hydrodesulfurized heavy	64742-82-1
Molybdenum sulfide	1317-33-5
Polybutyl titanate	9022-96-2
Graphite	7782-42-5
Xylene	1330-20-7
Butan-1-ol	71-36-3
Zinc oxide	1314-13-2
Ethylbenzene	100-41-4

California Prop. 65

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

Ethylbenzene	100-41-4
Benzene	71-43-2
Quartz	14808-60-7

WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

Benzene	71-43-2
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California List of Hazardous Substances

Butane	106-97-8
n-Butyl acetate	123-86-4
Molybdenum sulfide	1317-33-5
Graphite	7782-42-5

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California Permissible Exposure Limits for Chemical Contaminants

Butane	106-97-8
Propane	74-98-6
n-Butyl acetate	123-86-4
Molybdenum sulfide	1317-33-5
Graphite	7782-42-5

The ingredients of this product are reported in the following inventories:

NZIoC : All ingredients listed or exempt.

TSCA : All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.

PICCS : All ingredients listed or exempt.

KECI : All ingredients listed, exempt or notified.

IECSC : All ingredients listed or exempt.

AICS : All ingredients listed or exempt.

REACH : For purchases from Dow Corning EU legal entities, all ingredients are currently pre/registered or exempt under REACH. Please refer to section 1 for recommended uses. For purchases from non-EU Dow Corning legal entities with the intention to export into EEA please contact your DC representative/local office.

ENCS/ISHL : Some components are not listed or not identified on ENCS/ISHL.

DSL : All chemical substances in this product comply with the CEPA 1999 and NSNR and are on or exempt from listing on the Canadian Domestic Substances List (DSL).

TCSI : All ingredients listed or exempt.

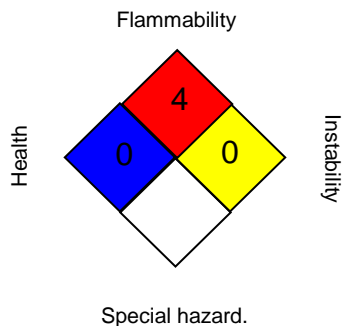
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SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS® IV:

HEALTH	*	3
FLAMMABILITY		4
PHYSICAL HAZARD		3

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	:	ACGIH - Biological Exposure Indices (BEI)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-3	:	USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST	:	STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
NIOSH REL / C	:	Ceiling value not be exceeded at any time.
OSHA Z-1 / TWA	:	8-hour time weighted average
OSHA Z-3 / TWA	:	8-hour time weighted average

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health

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Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Revision Date : 03/18/2017

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

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