1. Product and company identification

Product identifier

Trade name: Anti Friction Coating MoS2

Relevant identified uses of the substance or mixture and uses advised against

General use: Technical aerosol

Details of the supplier of the safety data sheet

Company name: WEICON Inc.
Street/POB-No.: 20 Steckle Place, Unit 20
Postal Code, city: Kitchener, Ontario N2E 2C3, CA
WWW: www.weicon.ca
E-mail: info@weicon.ca
Telephone: +1-519-896-5252
Telefax: +1-519-896-5254
Dept. responsible for information:
Product-Safety-Department
Telephone: +49(0)251 / 9322 - 0, Email: msds@weicon.de

Emergency phone number

EMERGENCY CONTACT – USA (24h): Tel: ++1 202 464 2554

Transport:
TRANSPORT EMERGENCY CONTACT - USA (24h): Tel: ++1 202 464 2554

2. Hazards identification

Emergency overview

Appearance: Physical state at 68 °F and 101.3 kPa: liquid
Form: Aerosol
Color: gray

Odor: characteristic

Classification: Flammable Aerosol - Category 1; Compressed Gas;
Specific Target Organ Toxicity (Single Exposure) - Category 3;
Aquatic toxicity - chronic - Category 3;

Hazard symbols:

Signal word: **Danger**

Hazard statements: Extremely flammable aerosol.
Contains gas under pressure; may explode if heated.
May cause drowsiness or dizziness.
Harmful to aquatic life with long lasting effects.

Precautionary statements: Keep out of reach of children.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Do not spray on an open flame or other ignition source.
Do not pierce or burn, even after use.
Avoid breathing spray.
Use only outdoors or in a well-ventilated area.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor if you feel unwell.
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Protect from sunlight. Store in a well-ventilated place.
Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.
Dispose of contents/container to hazardous or special waste collection point.

Regulatory status

This material is considered hazardous by the U.S. OSHA Hazard Communication Standard (29 CFR 1910.1200) and SIMDUT in Canada.

Hazards not otherwise classified

Inhaling can lead to irritations of the respiratory tract and mucous membrane.
Potentially explosive mixtures may form if adequate ventilation is not provided.
Higher doses may lead to a narcotic effect.
see section 11: Toxicological information

3. Composition / Information on ingredients

Chemical characterization: Preparation of active ingredients with propellant

Relevant ingredients:

CAS No.	Designation	Content	Classification
CAS 109-66-0	n-Pentane	10 - 20 %	Flammable Liquid - Category 2. Specific Target Organ Toxicity (Single Exposure) - Category 3. Aspiration Toxicity - Category 1. Aquatic toxicity - chronic - Category 2.
CAS 123-86-4	n-Butyl acetate	10 - 20 %	Flammable Liquid - Category 3. Specific Target Organ Toxicity (Single Exposure) - Category 3.
CAS 64742-82-1	Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	< 1 %	Flammable Liquid - Category 3. Specific Target Organ Toxicity (Single Exposure) - Category 3. Aspiration Toxicity - Category 1. Aquatic toxicity - chronic - Category 2.
CAS 106-97-8	Butane	30 - 50 %	Flammable Gas - Category 1. Compressed Gas.
CAS 74-98-6	Propane	10 - 20 %	Flammable Gas - Category 1. Compressed Gas.
CAS 75-28-5	Isobutane	10 - 20 %	Flammable Gas - Category 1. Compressed Gas.

4. First aid measures

General information: First aider: Pay attention to self-protection!
Take off immediately all contaminated clothing and wash it before reuse.

In case of inhalation: Move victim to fresh air, put at rest and loosen restrictive clothing.
In case of irregular breathing or respiratory arrest provide artificial respiration.
Seek medical attention.

Following skin contact: After contact with skin, wash immediately with soap and plenty of water. Consult a doctor if skin irritation persists.

After eye contact: Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing.
Subsequently consult an ophthalmologist.

After swallowing: Immediately get medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.

Most important symptoms/effects, acute and delayed

May cause drowsiness or dizziness.
Inhalation causes narcotic effects/intoxication.

Information to physician

Treat symptomatically.

5. Fire fighting measures

Flash point/flash point range:
-76 °F

Auto-ignition temperature: not self-igniting

Suitable extinguishing media:
Dry chemical powder, sand, carbon dioxide.

Extinguishing media which must not be used for safety reasons:
Full water jet

Specific hazards arising from the chemical

Extremely flammable aerosol. Contains gas under pressure; may explode if heated.

May form dangerous gases and vapours in case of fire.
Furthermore, there may develop: carbon monoxide and carbon dioxide.
Potentially explosive vapor/air mixtures may form.

Protective equipment and precautions for firefighters:
Wear self-contained positive pressure breathing apparatus and full firefighting protective clothing.

Additional information: Heating will lead to pressure increase: Danger of bursting and explosion. Cool exposed containers with water spray.
Move undamaged containers from immediate hazard area if it can be done safely.
In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Do not allow fire water to penetrate into surface or ground water.
Fire residuals and contaminated extinguishing water must be disposed of in accordance with the regulations of the local authorities.

6. Accidental release measures

Personal precautions: Provide adequate ventilation. Do not breathe gas/vapor/spray. Avoid contact with the substance.
Eliminate all ignition sources if safe to do so. Wear appropriate protective equipment.
Keep unprotected people away.
Do not open or incinerate, even when empty. Do not spray into flames or on incandescent objects.

Environmental precautions:
Do not allow to enter into ground-water, surface water or drains.
In case of release, notify competent authorities. Danger of explosion!

Methods for clean-up: Isolate leaked material using non-flammable absorption agent (e.g. sand, earth, vermiculit, diatomaceous earth) and collect it for disposal in appropriate containers in accordance with the local regulations (see section 13).
Beware of reignition. Thoroughly clean surrounding area.
Leaking cans, cans with spillage, are to be segregated, sprayed to empty state and disposed of. Refer to section 13 (Waste removal).

Additional information: Use explosion-proof equipment and non-sparking tools/utensils.

7. Handling and storage

Handling

Advices on safe handling: Provide adequate ventilation, and local exhaust as needed. Do not breathe gas/vapor/spray.
Avoid contact with skin and eyes. Do not spray into eyes or onto the skin. Wear appropriate protective equipment.
Guarantee sufficient ventilation during and after use, in order to prevent vapour accumulation.
Take off immediately all contaminated clothing and wash it before reuse.

Precautions against fire and explosion:
Container under pressure. Do not open or incinerate, even when empty. Do not spray into flames or on incandescent objects. Keep away from sources of ignition - No smoking.
Take precautionary measures against static discharges.
Use only explosion-protected equipment/instruments. Do not weld.
Vapors may form explosive mixtures with air.

Storage

Requirements for storerooms and containers:
Keep container tightly closed and in a well-ventilated place.
Keep container dry. Keep only in the original container.
Protect from heat and direct sunlight. Keep at temperature not exceeding 122 °F.
Store containers in upright position. Explosion protection required. Store locked up.

Hints on joint storage: Do not store together with combustible or self-igniting materials or any highly flammable solids.
Keep away from food, drink and animal feedingstuffs.

8. Exposure controls / personal protection

Exposure guidelines

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
109-66-0	n-Pentane	NIOSH: Ceiling USA: NIOSH: TWA	1800 mg/m³; 610 ppm 350 mg/m³; 120 ppm
123-86-4	n-Butyl acetate	USA: NIOSH: STEL USA: NIOSH: TWA USA: OSHA: TWA	950 mg/m³; 200 ppm 710 mg/m³; 150 ppm 710 mg/m³; 150 ppm
106-97-8	Butane	USA: ACGIH: TWA USA: NIOSH: TWA	1000 ppm 1900 mg/m³; 800 ppm
74-98-6	Propane	USA: NIOSH: TWA USA: OSHA: TWA	1800 mg/m³; 1000 ppm 1800 mg/m³; 1000 ppm
75-28-5	Isobutane	USA: ACGIH: TWA USA: NIOSH: TWA	1000 ppm 1900 mg/m³; 800 ppm

Engineering controls

Provide for good ventilation or exhaust system or work with completely self-contained equipment. Use only explosion-proof equipment.
See also information in chapter 7, section storage.

Personal protection equipment (PPE)

Eye/face protection: Tightly sealed goggles according to OSHA Standard - 29 CFR: 1910.133 or ANSI Z87.1-2010.

Skin protection: Flame retardant, antistatic and chemical resistant protective clothing.

Protective gloves according to OSHA Standard - 29 CFR: 1910.138
Glove material: Nitrile rubber - Layer thickness: 0.4 mm
Breakthrough time: > 60 min.
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Respiratory protection: Respiratory protection must be worn whenever the TLV (WEL) levels have been exceeded.
The filter class must be suitable for the maximum contaminant concentration (gas/vapor/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, closed-circuit breathing apparatus must be used!

General hygiene considerations:

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Do not pierce or burn, even after use.
Do not breathe spray. Do not get in eyes, on skin, or on clothing.
Take off contaminated clothing and wash it before reuse. Wear appropriate protective equipment.
Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace.
Guarantee sufficient ventilation during and after use, in order to prevent vapour accumulation.
When handling large quantities, supply emergency spray.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance:	Physical state at 68 °F and 101.3 kPa: liquid Form: Aerosol Color: gray
Odor:	characteristic
Odor threshold:	not determined
pH value:	No data available
Melting point/freezing point:	not determined
Initial boiling point and boiling range:	not applicable
Flash point/flash point range:	-76 °F
Evaporation rate:	No data available
Flammability:	extremely flammable aerosol
Explosion limits:	LEL (Lower Explosion Limit): 1.20 Vol-% UEL (Upper Explosive Limit): 10.90 Vol-%
Vapor pressure:	at 68 °F: 3300 hPa
Vapor density:	not determined
Density:	at 68 °F: 0.85 g/mL
Solubility:	not determined
Water solubility:	slightly miscible

Partition coefficient: n-octanol/water:	not determined
Auto-ignition temperature:	not self-igniting
Thermal decomposition:	No decomposition when used properly.
Viscosity, dynamic:	not determined
Viscosity, kinematic:	not determined
Explosive properties:	Product is not explosive. Potentially explosive vapor/air mixtures may form.
Ignition temperature:	545 °F

10. Stability and reactivity

Reactivity: Extremely flammable aerosol.
Vapors may form explosive mixtures with air.

Chemical stability: Stable under recommended storage conditions.

Possibility of hazardous reactions
Contains gas under pressure; may explode if heated.

Conditions to avoid: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not pierce or burn, even after use. Do not spray on an open flame or other ignition source. Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

Incompatible materials: Do not store together with combustible or self-igniting materials or any highly flammable solids.

Hazardous decomposition products:
No hazardous decomposition products when regulations for storage and handling are observed.

Thermal decomposition: No decomposition when used properly.

11. Toxicological information

Toxicological tests

Toxicological effects: The statements are derived from the properties of the single components. No toxicological data is available for the product as such.

Acute toxicity (oral): Lack of data.

Acute toxicity (dermal): Lack of data.

Acute toxicity (inhalative): Lack of data.

Skin corrosion/irritation: Lack of data.

Eye damage/irritation: Lack of data.

Sensitisation to the respiratory tract: Lack of data.

Skin sensitisation: Lack of data.

Germ cell mutagenicity/Genotoxicity: Lack of data.

Carcinogenicity: Lack of data.

Reproductive toxicity: Lack of data.

Effects on or via lactation: Lack of data.

Specific target organ toxicity (single exposure): Specific Target Organ Toxicity (Single Exposure) - Category 3 = May cause drowsiness or dizziness.

Specific target organ toxicity (repeated exposure): Lack of data.

Aspiration hazard: Based on available data, the classification criteria are not met.

Other information: Further hazardous properties cannot be excluded.

Symptoms

Inhaling can lead to irritations of the respiratory tract and mucous membrane.

12. Ecological information

Ecotoxicity

Aquatic toxicity: Harmful to aquatic life with long lasting effects.

Mobility in soil

No data available

Persistence and degradability

Further details: No data available

Additional ecological information

Volatile organic compounds (VOC):
approx. 87.28 % by weight = 597 g/L

General information: Avoid spills and leaks. Very small amounts contaminates drinking water.
Do not allow to enter into ground-water, surface water or drains.

13. Disposal considerations

Product

Recommendation: Dispose of waste according to applicable legislation.

Contaminated packaging

Recommendation: Dispose of waste according to applicable legislation. Handle empty containers with care. Incineration may cause explosion. Spray can must be completely empty for proper waste disposal.

14. Transport information

USA: Department of Transportation (DOT)

Identification number:	UN1950
Proper shipping name:	UN 1950, AEROSOLS
Hazard class or Division:	2.1
Labels:	2.1
Special provisions:	N82
Packaging – Exceptions:	306
Packaging – Non-bulk:	None
Packaging – Bulk:	None
Quantity limitations – Passenger aircraft / rail:	75 kg
Quantity limitations – Cargo only:	150 kg
Vessel stowage – Location:	A
Vessel stowage – Other:	25, 87, 126

Sea transport (IMDG)

UN number:	UN 1950
Proper shipping name:	UN 1950, AEROSOLS
Class or division, Subsidary risk:	Class 2.1, Subrisk-
Packing Group:	-
EmS:	F-D, S-U
Special provisions:	63, 190, 277, 327, 344, 381,959
Limited quantities:	1000 mL
Excepted quantities:	E0
Contaminated packaging - Instructions:	P207, LP200
Contaminated packaging - Provisions:	PP87, L2
IBC - Instructions:	-
IBC - Provisions:	-
Tank instructions - IMO:	-
Tank instructions - UN:	-
Tank instructions - Provisions:	-
Stowage and handling:	SW1 SW22
Segregation:	SG69
Properties and observations:	-
Marine pollutant:	no
Segregation group:	none

Air transport (IATA)

UN/ID number:	UN 1950
Proper shipping name:	UN 1950, AEROSOLS, flammable
Class or division, Subsidary risk:	Class 2.1
Hazard label:	Flamm. gas
Excepted Quantity Code:	E0
Passenger and Cargo Aircraft: Ltd.Qty.:	Pack.Instr. Y203 - Max. Net Qty/Pkg. 30 kg G
Passenger and Cargo Aircraft:	Pack.Instr. 203 - Max. Net Qty/Pkg. 75 kg
Cargo Aircraft only:	Pack.Instr. 203 - Max. Net Qty/Pkg. 150 kg
Special provisions:	A145 A167 A802
Emergency Response Guide-Code (ERG):	10L

15. Regulatory information

National regulations - U.S. Federal Regulations

n-Pentane:
TSCA Inventory: listed; EPA flags T
TSCA HPVC: not listed
Clean Air Act:
Accidental Release Prevention: Threshold 10000 lbs. / Basis for listing = g
NIOSH Recommendations:
Occupational Health Guideline: 0486

n-Butyl acetate:
TSCA Inventory: listed
TSCA HPVC: not listed
Clean Water Act:
Hazardous Substances: RQ 5000 lbs.
Other Environmental Laws:
CERCLA: RQ 5000 lbs.
NIOSH Recommendations:
Occupational Health Guideline: 0072

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%):
TSCA Inventory: listed; UVCB
TSCA HPVC: not listed

Butane:
TSCA Inventory: listed
TSCA HPVC: not listed
Clean Air Act:
Accidental Release Prevention: Threshold 10000 lbs. / Basis for listing = f
NIOSH Recommendations:
Occupational Health Guideline: 0068*

Propane:
TSCA Inventory: listed
TSCA HPVC: not listed
Clean Air Act:
Accidental Release Prevention: Threshold 10000 lbs. / Basis for listing = f
NIOSH Recommendations:
Occupational Health Guideline: 0524

Isobutane:
TSCA Inventory: listed
TSCA HPVC: not listed
Clean Air Act:
Accidental Release Prevention: Threshold 10000 lbs. / Basis for listing = f
NIOSH Recommendations:
Occupational Health Guideline: 0350*

National regulations - U.S. State Regulations

n-Butyl acetate:
CAS# 123-86-4 can be found on the following state right to know lists:
- California, Massachusetts, Minnesota, New Jersey, Pennsylvania.

Butane:
Delaware Air Quality Management List:
DRQ: F 1000** - RQ State: State requirements differs from Federal
Massachusetts Haz. Substance codes: 4,5,6
Minnesota Haz. Substance:
Codes: A - Ratings: - - Status: Title III
New Jersey RTK Hazardous Substance:
DOT: 1011 - Sub No.: 0273 - TPQ: -
Pennsylvania Haz. Substance code: -
Washington Air Contaminant:
TWA: 800 ppm - 1900 mg

Propane:
California Proposition 65 code: -
Delaware Air Quality Management List:
DRQ: F 1000** - RQ State: State requirements differs from Federal
Massachusetts Haz. Substance codes: 2,4,5,6
Minnesota Haz. Substance:
Codes: AP - Ratings: - - Status: Title III
New Jersey RTK Hazardous Substance:
DOT: 1978 - Sub No.: 1594 - TPQ: -
Pennsylvania Haz. Substance code: -
Washington Air Contaminant:
TWA: 1000 ppm - 1800 mg

Isobutane:
California Proposition 65 code: -
Delaware Air Quality Management List:
DRQ: F 1000** - RQ State: State requirements differs from Federal
Massachusetts Haz. Substance codes: 6
New Jersey RTK Hazardous Substance:
DOT: 1969 - Sub No.: 1040 - TPQ: -
Pennsylvania Haz. Substance code: -

National regulations - Great Britain

Hazchem-Code: -

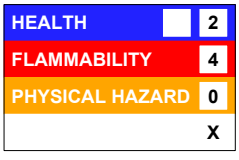
16. Other information

Text for labeling:
Contains 10 - 20 % n-Pentane, 10 - 20 % n-Butyl acetate, < 1 % Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%), 30 - 50 % Butane, 10 - 20 % Propane, 10 - 20 % Isobutane. Safety data sheet available on request.

Hazard rating systems:

NFPA Hazard Rating:
Health: 2 (Moderate)
Fire: 4 (Severe)
Reactivity: 0 (Minimal)

HMIS Version III Rating:
Health: 2 (Moderate)
Flammability: 4 (Severe)
Physical Hazard: 0 (Minimal)
Personal Protection: X = Consult your supervisor



Reason of change:
Changes in section 2: Classification, labeling
General revision

Date of first version:
Dec/28/2015

Department issuing data sheet

Contact person:
see section 1: Dept. responsible for information

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.