

Safety Data Sheet

1. Products and company identification

Product name: ROVAL SILVER SPRAY
Recommended use: Anti-corrosion of steel/iron.
Supplier: Roval Corporation
 6-41-1, Ikuno, Katano
 Osaka, 5760054, Japan
 +81-72-892-7791
Emergency phone number: +81-72-892-9955
Date Revised/Confirmed: March 5, 2018

2. Hazards identification

PHYSICAL HAZARDS: Flammable Aerosols Category 2

HEALTH HAZARDS:

Acute Toxicity	Oral:	Not Classified
	Dermal:	Not Classified
	Inhalation (Gas):	Not Classified
	Inhalation (Vapors):	Category 4
	Inhalation (Dust/mist):	Not Classified
Skin Corrosion/Irritation:		Category 2
Eye Effects/Serious eye damage/Eye irritation:		Category 2
Skin sensitizer:		Not Classified
Germ Cell Mutagenicity:		Not Classified
Carcinogenicity:		Category 1
Reproductive Toxicity:		Category 1
TOST: Single Exposure:		Category 1: Cause damage to organs (central nerve system, respiratory system, liver, kidney) Category 2: May cause damage to organs (organs) Category 3: May cause drowsiness or dizziness.
Repeated Exposure:		Category 1: Cause damage to organs through prolonged or repeated exposure. (nerve system, respiratory system) Category 2: May cause damage to organs through prolonged or repeated exposure. (central nerve system, lung, kidney)
Acute Aquatic Toxicity:		Category 1
Chronic Aquatic Toxicity:		Category 1
Hazard to ozone layer:		Classification not possible

Hazard Symbols:



Signal Word: DANGER

Hazard Statement:

- Combustible or flammable aerosol -Pressurized container: may burst if heated
- Harmful if inhaled -Causes skin irritation -Causes serious eye irritation
- May cause genetic defects Suspected of causing cancer
- Suspected of damaging fertility or the unborn child -May cause damage to organs
- May causes damage to organs through prolonged or repeated exposure
- Very toxic to aquatic life with long lasting effects

Precautionary Statements:

[PREVENTION]

- Obtain special instruction before use
- Do not handle until all safety precautions have been read and understood
- Keep away from heat/sparks/open flames/hot surfaces – No smoking.
- Do not spray on an open flame or other ignition source.
- Pressurized container: Do not pierce or burn, even after use.
- Do not breathe dust/fume/gas/mist/vapor/spray.
- Wash hands thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Use only outdoors or in a well-ventilated area.
- Avoid release to the environment.
- Wear protective gloves/protective clothing/eye protection/face protection.

[FIRST AID]

- IF ON SKIN: Wash contaminated area with a lot of water.
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
- IF EXPOSED (or possible): Get medical attention.
- If eye irritation persists: Get medical advice/attention.
- Take off contaminated clothes. Wash before reusing them.
- Recover the leakage.

[STORAGE]

- Store in a well ventilated place, keeping container closed.
- Store locked up.
- Protect from sunshine.
- Do not expose to temperatures exceeding 40°C.

[DISPOSAL]

- Follow the regulations of your country when disposing of the container.

3. Composition/information on ingredients

Substance/Mixture: Mixture

General product description: Paint (420ml = 428g)

Chemical Identity	CAS Number	% Weigh
Aluminum	7429-80-5	1~5
Xylene	1330-20-7	11
Ethyl benzene	100-41-4	9.8
Toluene	108-88-3	4.9
Mineral spirit	8052-41-3	1~5
Ethanol	64-17-5	0~1
Dimethyl ether	115-10-6	35~40
Zinc	7440-66-6	25~30
Zinc oxide	1314-13-2	<5.0

4. First-aid measures

- Inhalation:** Remove to fresh air at comfortable posture. Seek medical attention if symptoms persist.
- Skin contact:** Remove all contaminated clothing and wipe off accretion. Wash the affected area with plenty of water with mild soap. If apparent condition changes or irritation is continued, refer to medical attention.
- Eye contact:** Gently rinse the affected eyes with clean water for at least 15 minutes lifting upper and lower eyelids occasionally. Remove contact lenses if present and easy to do. Get immediate medical attention.
- Ingestion:** Keep rest and get medical attention immediately. Do not induce vomiting without medical instruction.
- For caretaker:** Wear proper protective equipment. Keep ventilating.

5. **Firefighting measures**

Extinguishing Media: Carbon dioxide, form, powder

Water must NOT be used for extinction.

Special protective equipment and precaution for fire fighters: Wear proper protective equipment. Remove sources of ignition if possible. Use specified extinguishing media. Cool closed containers which may be exposed to heat. Extinguish from windward side. Keep distant during fire fighting as a heated container may burst.

6. **Accidental release measures**

Personal precautions:

Use the necessary personal protective equipment (glove, mask, apron, goggle) when handling. Ventilate well if inside. Operate release measure action from windward wide if outside. Keep away any person who is not concerned. Prepare extinguishing media for accidental fire. Be careful not to spill the content when shaking.

Environmental precautions:

Avoid spill into waterway not to affect environment.

Equipment and method for containment and cleaning-up:

Contain the leakage into closed container and store in a safe place. Dispose of accretion or waste in accordance with local regulation. Recover the leakage with equipment which do not spark by impact or static discharge.

7. **Handling and Storage**

[Handling]

Handle in a well ventilated area. Keep container closed when storage. Do not handle this product in a temperature above 40°C. Do not heat the container above 40°C. Do not keep spraying for more than 30 seconds. Prepare ventilating and personal protective equipment when handling this product in closed area. Wash hands and face completely after the handling and do not bring contaminated equipment into rest stations.

[Storage]

Avoid direct sunshine. Store in a well-ventilated, locked-up area. Keep out the reach of children. Keep containers away from fire/flame. Do not store in a temperature above 40°C. Do not store at the place with high humidity or near plumbing to avoid the container bursting by corrosion.

8. Exposure controls/ Personal protection

Control parameters:

Chemical Identity	ACGIH TLV (2016)
Aluminum	1mg/m ³ (R)(TWA)
Xylene	100ppm (TWA)
Ethyl benzene	20ppm (TWA)
Toluene	20ppm (TWA)
Mineral spirit	100ppm (TWA)
Ethanol	1000ppm (STEL)
Dimethyl ether	N/A
Zinc	---
Zinc oxide	2mg/m ³ (TWA)

Equipment measure:

Use explosion-proof equipment and ventilating equipment. Earth when using transporting, scooping, or agitating equipment. High-heat or source of ignition must not be put near the handling place.

Use auto-painting equipment or local ventilating equipment to avoid direct contact of workers with the product in closed place. Prepare the equipment which can ventilate enough at the bottom in case of the operation inside of tanks.

Personal protection measures:

Respiratory protection: Wear protective mask for organic gas. Use ventilating mask in closed place.

Hand protection: Protective gloves for solvent or chemicals.

Eye protection: Wear protective goggles.

Skin and body protection: Wear protective clothes for chemicals to avoid direct contact.

9. Physical and Chemical Properties

Physical State:	Liquid	Color:	Silver
Odor:	Smells like solvent.	Density (g/ml):	1.02
Vapor Pressure:	1.4kPa	Auto-ignition Temp:	230°C
Flash Point:	Paint liquid: 19.1°C	Propellant:	-41.1°C
Explosion Limits(vol%):	LEL 0.6 UEL 27		
Boiling Point:	-24.8~130°C		

10. Stability and Reactivity

Stability: Stable under normal condition and anticipated storage.

Conditions to avoid: Heat, open fire and sparks. Forming of mixture with atmosphere within flammable limit.

Possibility of Hazardous Reactions: May react with acid substances.

Hazardous decomposition Products: Generate carbon monoxide and carbon dioxide by heating.
Generate stimulant gas.

11. Toxicological information

[ACUTE TOXICITY]

Material	Oral	Category	Dermal	Category
Aluminum	Classification not possible		Classification not possible	
Xylene	3.5 g / kg	Not classified	Classification not possible	
Ethyl benzene	3.5 g / kg	Not classified	15.4 g / kg	Not classified
Toluene	5.0 g / kg	Not classified	12.0 g / kg	Not classified
Mineral spirit	> 5.0g / kg	Not classified	Classification not possible	
Ethanol	6.2g / kg	Not classified	> 20.0g / kg	Not classified
Dimethyl ether	Classification not possible		Classification not possible	
Zinc	> 2.0 g / kg	Not classified	Classification not possible	
Zinc oxide	> 5.0 g / kg	Not classified	> 5.0 g / kg	Not classified

[ACUTE TOXICITY - Inhalation]

Material	Gas	Category	Vapor	Category	Dust/Mist	Category
Aluminum	Conclusive but not sufficient for classification		Classification not possible		Classification not possible	
Xylene	Conclusive but not sufficient for classification		6700 ppm	Category4	Classification not possible	
Ethyl benzene	Conclusive but not sufficient for classification		4000 ppm	Category 4	Classification not possible	
Toluene	Conclusive but not sufficient for classification		4000 ppm	Category 4	Classification not possible	
Mineral spirit	Conclusive but not sufficient for classification		Classification not possible		Classification not possible	
Ethanol	Conclusive but not sufficient for classification		63000 ppm	Out of classification	Classification not possible	
Dimethyl ether	164000 ppm	Classification not possible	Out of classification		Conclusive but not sufficient for classification	
Zinc	Conclusive but not sufficient for classification		Classification not possible		> 5.41 mg / L	Not classified
Zinc oxide	Conclusive but not sufficient for classification		Conclusive but not sufficient for classification		> 5.7 mg / L	Not classified

Material	Skin Corrosion/Irritation	Eye damage/irritation	Respiratory sensitization	Skin sensitization
Aluminum	Classification not possible	Classification not possible	Classification not possible	Classification not possible
Xylene	Category 2	Category 2A	Classification not possible	Classification not possible
Ethyl benzene	Category 3	Category 2B	Classification not possible	Classification not possible
Toluene	Category 2	Category 2B	Classification not possible	Not classified
Mineral spirit	Category 2	Not classified	Classification not possible	Not classified
Ethanol	Not classified	Category 2B	Classification not possible	Classification not possible
Dimethyl ether	Classification not possible	Classification not possible	Classification not possible	Classification not possible
Zinc	Not classified	Class 2B	Classification not possible	Not classified
Zinc oxide	Not classified	Not classified	Classification not possible	Not classified

Material	Germ cell mutagenicity	Carcinogenicity	Reproductive toxicity
Aluminum	Classification not possible	Classification not possible	Classification not possible
Xylene	Not classified	Not classified	Category 1B
Ethyl benzene	Not classified	Category 2	Category 1B
Toluene	Not classified	Classification not possible	Category 1A
Mineral spirit	Not classified	Classification not possible	Not classified
Ethanol	Classification not possible	Category 1A	Category 1A
Dimethyl ether	Classification not possible	Classification not possible	Classification not possible
Zinc	Classification not possible	Classification not possible	Classification not possible
Zinc oxide	Classification not possible	Classification not possible	Category 2

Material	TOST (Single)	TOST (Chronic)	Aspiration hazard
Aluminum	Classification not possible	Category 1 (lung)	Classification not possible
Xylene	Category 1 (respiratory system, liver, Central nerve system, kidney)	Category 1 (respiratory system, nerve system)	Category 2
	Category 3 (anesthetic action)		
Ethyl benzene	Category 2 (central nerve system)	Classification not possible	Category 1
	Category 3 (anesthetic action)		
Toluene	Category 1 (central nerve system)	Category 1 (central nerve system, liver)	Category 1
	Category 3 (respiratory tract irritation, anesthetic action)		
Mineral spirit	Category 3 (respiratory tract irritation, anesthetic action)	Category 2 (liver, testis)	Category 1
Ethanol	Category 3 (respiratory tract irritation, anesthetic action)	Category 1 (liver)	Classification not possible
		Category 2 (central nerve system)	
Dimethyl ether	Class 3 (anesthetic action)	Classification not possible	Classification not possible
Zinc	Classification not possible	Classification not possible	Classification not possible
Zinc oxide	Class 1 (respiratory system, systemic toxicity)	Classification not possible	Classification not possible

12. Ecological Information

General Precaution: Be careful not to spill or leak product, not to affect environment when disposal. The product or wash water must not be in touch with ground, river, or water drain.

Ecological Toxicity: Acute harmful effect on aqueous milieu.

Material	Acute Aquatic Toxicity	Chronic Aquatic Toxicity	Hazard to Ozone
Aluminum	Classification not possible	Category 4	Classification not possible
Xylene	Category 2	Category 2	Classification not possible
Ethyl benzene	Category 1	Not classified	Classification not possible
Toluene	Category 2	Category 3	Classification not possible
Mineral spirit	Category 1	Category 1	Classification not possible
Ethanol	Not classified	Not classified	Classification not possible
Dimethyl ether	Not classified	Not classified	Classification not possible
Zinc	Category 1	Category 1	Classification not possible
Zinc oxide	Category 1	Category 1	Classification not possible

Persistence and Degradative: No rapid degradative (BOD: 39%) Xylene

Has rapid degradative and volatilize from water; Ethyl benzene

No rapid degradative (BOD: 12-13%) Mineral spirit

No rapid degradative (Metal compound) Zinc

Bioaccumulation potential: Xylene; may be low potential (log K_{ow} = 3.16)

Ethyl benzene; may be low potential (log K_{ow} = 3.15)

Mineral spirit; no data

13. Disposal considerations

[Residual Wastage]

Follow the local regulation. Waste including residue and container should be disposed by licensed industrial waste disposer after the consignment contract. Wash water used for cleansing containers and equipment must not be released into environment. For other wastage arise in effluent processing or incineration, dispose of them in accordance with the law or entrust it. Disposal of the spray can must be done after making sure it is empty and no gas pressure inside.

The product, its residue, and incinerated ash are specially-controlled industrial wastes, which must be disposed of by a licensed industrial waste disposer. Disposal of the aerosol can must be done after emitting all the gas inside, being careful for fire or inhalation of mist.

14. Transport information

[Regulation] UN No.: 1950 UN Class: 2.1 (Flammable gas) PG: ---

General: Read sections concerning handling and storage. Confirm that there is no leakage and load the products without rolling, falling, or damage. Avoid load collapse.

Land: Follow local regulation, such as Fire Defense Law, Industrial Safety and Health Act, or Poisonous Material Act. Transporter must follow the precaution on the product labels.

Sea: Follow local regulations, such as Ship Safety Act or Act for the Prevention of Marine Pollution and Maritime Disasters.

Air: Follow local regulations, such as Aviation Law.

Other: Keep the container under the temperature less than 40°C. Be careful not to roll, fall, or damage.

Safety measure: Read the section regarding handling and storage. Confirm that there is no leakage and load the products without rolling, falling, or damage. Avoid load collapse.

15. Regulatory Information

Classification and labeling in accordance with Labor Safety and Health Act:

See Section 2

Other regulation for foreign countries:

Regulatory information with regards to this preparation in your country or region should be examined by your own responsibility.

16. Other Information

References:

- 1) GHS Classification Guidance for Enterprises. (United Nations 2009)
- 2) SDS from manufacturers of raw materials
- 3) Roval's own data

The information herein is given in good faith, but no warranty, express or implied, is made.

The information contained herein is, to the best of Roval's knowledge and belief, accurate and reliable as of the data issued. It is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions. We reserve the right to revise SDS periodically as new information becomes available.
