Safety Data Sheet

1. Products and company identification

Product name: **ROVAL SILVER SPRAY MILD TYPE**

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 April 6, 2017

2. Hazards identification

PHYSICAL HAZARDS: Flammable Aerosols Category 2

HEALTH HAZARDS:

Acute Toxicity	Oral:	Not Classified
	Dermal:	Not Classified
	Inhalation (Vapors):	Not Classified
	Inhalation (Dust/Mist):	Not Classified
Skin Corrosion/Irritation:		Not Classified
Eye Effects/Serious eye damage/Eye irritation:		Category 2
Skin sensitizer:		Not Classified
Germ Cell Mutagenicity:		Not Classified
TOST: Single Exposure:		Category 1 (-)
		Category 2 (May cause damage to organs; systemic toxicity)
		Category 3 (May cause drowsiness or dizziness)
Repeated Exposure:		Category 1 (-)
		Category 2 (-)
Acute Aquatic Toxicity:		Category 1
Chronic Aquatic Toxicity:		Category 1
Hazard to Ozone:		Classification not possible

*Item without description of classification means “classification not possible” or “not classified”.

Hazard Symbols:

Signal Word: **WARNING**

Hazard Statement:

-Combustible or flammable aerosol -Pressurized container: may burst if heated

-Serious eye irritation -May cause damage to organs

-Cause damage to organs through prolonged or repeated exposure

-Very toxic to aquatic life with long lasting effects

Precautionary Statements:

[PREVENTION]

-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 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.

-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(Net Wt. 420ml = 447g)

General product description: Paint

Chemical Identity	CAS Number	% Weigh
Aluminum	7429-90-5	<5.0
Solvent naphtha	64742-95-6	15 ~ 20
1,2,4-Trimethylbenzene	95-63-6	9.5

1,3,5-Trimethylbenzene	108-67-8	4.1
Dimethyl ether	115-10-6	30 ~ 35
Zinc Oxide	1314-13-2	<5.0
Zinc	7440-66-6	30 ~ 35

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, dry sand
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 handing 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 (2011)
Aluminum	1mg/ m^3 (R)(TWA)
Solvent naphtha	N/A
1,2,4-Trimethylbenzene	25ppm (TWA)
1,3,5-Trimethylbenzene	25ppm (TWA)
Dimethyl ether	N/A
Zinc Oxide	2mg/m^3
Zinc	N/A

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.	pH:	N/A
Boiling Point:	-24.8~200°C	Melting Point:	N/A
Flash Point:	-41.1°C	Explosion Limits(vol%):	LEL 0.8 UEL 27.0
Vapor Pressure:	0.5kPa (20°C)	Vapor Density:	Approx. 3.8
Specific Gravity:	1.07	Solubility in water:	Insoluble
Auto-ignition Temp:	250°C	Decomposing Temperature:	N/A
Water Partition Coefficient:	N/A		

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 or alkaline 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	
Solvent naphtha	8.4 g / kg	Not classified	---	
1,2,4-Trimethylbenzene	5.0 g / kg	Not classified	Classification not possible	
1,3,5-Trimethylbenzene	Classification not possible		Classification not possible	
Dimethyl ether	Classification not possible		Classification not possible	
Zinc Oxide	>5.0 g / kg	Not classified	>5.0 g / kg	Not classified
Zinc	>2.0 g / kg	Not classified	Classification not possible	

[ACUTE TOXICITY - Inhalation]

Material	Gas	Category	Vapor	Category	Dust/Mist	Category
Aluminum	Not classified		Classification not possible		Classification not possible	
Solvent naphtha	---		---		---	
1,2,4-Trimethylbenzene	Classification not possible		Classification not possible		24mg/L	Not classified
1,3,5-Trimethylbenzene	Classification not possible		Classification not possible		18mg/L	Not classified
Dimethyl ether	164,000ppmV	Not classified	Not classified		Not classified	
Zinc Oxide	Classification not possible		Not classified		>5.7mg/L	Not classified
Zinc	Classification not possible		Classification not possible		>5.4mg/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
Solvent naphtha	---	---	---	---
1,2,4-Trimethylbenzene	Classification not possible	Classification not possible	Classification not possible	Classification not possible
1,3,5-Trimethylbenzene	Class 2	Class 2B	Classification not possible	Classification not possible
Dimethyl ether	Classification not possible	Classification not possible	Classification not possible	Classification not possible
Zinc Oxide	Not classified	Not classified	Classification not possible	Not classified
Zinc	Not classified	Class 2B	Classification not possible	Not classified

Material	Germ cell mutagenicity	Carcinogenicity	Reproductive toxicity
Aluminum	Classification not possible	Classification not possible	Classification not possible
Solvent naphtha	---	---	---
1,2,4-Trimethylbenzene	Not classified	Classification not possible	Classification not possible
1,3,5-Trimethylbenzene	Not classified	Classification not possible	Classification not possible
Dimethyl ether	Classification not possible	Classification not possible	Classification not possible
Zinc Oxide	Classification not possible	Classification not possible	Class 2
Zinc	Classification not possible	Classification not possible	Classification not possible

Material	TOST (Single)	TOST (Chronic)	Aspiration hazard
Aluminum	Classification not possible	Class 1 (lung)	Classification not possible
Solvent naphtha	---	---	---
1,2,4-Trimethylbenzene	Class 3 (respiratory tract irritation, anesthetic action)	Class 2 (central nerve system, lung)	Class 1
1,3,5-Trimethylbenzene	Class 3 (anesthetic action)	Classification not possible	Class 1
Dimethyl ether	Class 3 (anesthetic action)	Classification not possible	Classification not possible
Zinc Oxide	Class 1 (respiratory tract, systemic toxicity)	Classification not possible	Classification not possible
Zinc	Classification not possible	Classification not possible	Classification not possible

12. Ecological Information

General Precaution: Be careful not to spill or leak product and wash water into river and water drain. The product may have adverse effect on environment.

Ecological Toxicity: Acute harmful effect on aqueous milieu.

Material	Acute Aquatic Toxicity	Chronic Aquatic Toxicity	Hazard to Ozone
Aluminum	Classification not possible	Class 4	Classification not possible
Solvent naphtha	---	---	Classification not possible
1,2,4-Trimethylbenzene	Class 2	Class 2	Classification not possible
1,3,5-Trimethylbenzene	Class 2	Class 2	Classification not possible
Dimethyl ether	Not classified	Not classified	Classification not possible
Zinc Oxide	Class 1	Class 1	Classification not possible
Zinc	Class 1	Class 1	Classification not possible

Persistence and Degradative: No rapid degradative (BOD: 4-18%) 1,2,4-Trimethylbenzene
No rapid degradative (BOD: 0%) 1,3,5-Trimethylbenzene
No rapid degradative (Metal compound) Zinc

Bioaccumulation potential: 1,2,4-Trimethylbenzene; may be low potential (log K_{ow} = 3.63)
1,3,5-Trimethylbenzene; may be low potential (log K_{ow} = 3.42)

Mobility in soil: No data available.

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 arouse 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. Keep away source of flame and do not inhale mist during outgassing. In case incinerating the residue, incinerate it by bits after absorbing the rest of paint with diatom earth or something, or spray the rest of paint into incinerator. In case the generation of harmful gas (dioxin) is expected, entrust disposal of them to industrial waste disposal contractor.

The product, its residue, and incinerated ash are industrial waste specified as toxic, which must be disposed in accordance with Waste Disposal and Public Cleaning Law and other concerning laws.

Contaminated clothes or papers should be stored in impermeable containers. Dispose of them with licensed industrial waste disposers.

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) MSDS 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 MSDS periodically as new information becomes available.