



## **MATERIAL SAFETY DATA SHEET**

### **WARRIOR SILVER SURFACE SHIELD**

#### **SECTION 1. PRODUCT IDENTIFICATION**

**Product Name :** Warrior Silver Surface Shield  
**Product Code :** RN-VW3  
**Catalogue Number :** RN-VW3-L, RN-VW3-M, RN-VW3-H  
**Manufacturer/Supplier :** Reinste Nano Ventures Private Limited,  
A-118, Level II, Sector 63, Noida.201301.  
UP. India  
9810662669  
**Technical Helpline :** 0120-4781-212/3  
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**Email :** www.reinste.com , www.hiyka.com  
**Website :**

#### **SECTION 2. INGREDIENTS**

**Ethanol :** (CAS-No.) 64-17-5  
**Butanone :** (CAS-No.) 78-93-3  
**Silver :** (CAS No. )7440-22-4  
**Other additional substances in trace amounts**

#### **SECTION 3. PHYSICAL AND CHEMICAL PROPERTIES**

**Physical state :** Liquid  
**Colour :** colourless.  
**Odour :** alcohol odour.  
**Odour threshold :** 80 ppm  
**pH :** 1 - 3 (500g/l; 20°C)  
**Relative evaporation rate (butylacetate=1) :** No data available  
**Boiling point :** 78 °C  
**Flash point :** < 21 °C  
**Auto-ignition temperature :** No data available  
**Decomposition temperature :** No data available  
**Flammability (solid, gas) :** Not applicable  
**Vapour pressure:** 57 hPa Ethanol  
**Relative vapour density at 20 °C :** No data available  
**Relative density :** No data available  
**Density :** 0.8 (0.77 - 0.83) g/cm<sup>3</sup> (20°C)  
**Solubility :** Water: Slightly miscible  
**Viscosity, dynamic :** 1 - 10 mPa.s (20°C)  
**Explosive properties :** In use, may form flammable/explosive vapour-air mixt  
**Oxidising properties :** No data available  
**Lower explosive limit (LEL) :** 3.5 vol %

#### **SECTION 4. STABILITY AND REACTIVITY**

**Reactivity :** Flammable liquid and vapor  
**Chemical Stability :** Stable under normal conditions  
**Possibility of hazardous reactions :** No dangerous reactions known under normal conditions of use.  
**Conditions to avoid :** Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition  
**Incompatible Materials :** No additional information available  
**Hazardous Decomposition Products :** Under normal conditions of storage and use, hazardous decomposition products should not be produced.

#### **SECTION 5. EXPOSURE CONTROLS / PERSONAL PROTECTION EQUIPMENT**

**Appropriate engineering controls :** Ensure good ventilation of the work station.  
**Hand protection :** Chemically resistant protective gloves. EN 374. Choosing the proper glove is a decision that depends not only on the type of material, but also on other quality features, which differ for each manufacturer. Please follow the instructions related to the permeability and the penetration time provided by the manufacturer. Gloves must be replaced after each use and whenever signs of wear or perforation appear. The above-mentioned times are based on reference values as per EN 374. Under practical conditions (33°C taking into account the body temperature), the maximum wearing time is to be limited to one-third. Do not use : leather, thick fabric gloves

Type	Material	Permeation	Penetration	Standard
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Chemically resistant protective gloves	Butyl rubber, Nitrile rubber (NBR)	6 (> 480 minutes)	3 (>0.65)	EN 374
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**Eye protection :**

**Skin and body protection :**

**Respiratory protection :**

**Environmental exposure Controls :**

**Other information :**

Wear closed safety glasses. EN 166

Wear suitable protective clothing. Solvent-resistant apron  
In case of insufficient ventilation, wear suitable respiratory equipment. EN 143.

Avoid release to the environment.

Wash hands before breaks and after work. Do not eat, drink or smoke when using this product. Do not breathe gas/vapor/aerosol. Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure.

Device	Filter type	Condition	Standard
Breathing apparatus with filter	Type A - High-boiling (>65 °C) organic compounds	In case of unintentional release of substance, exceeding the occupational exposure limit value	EN 143

## SECTION 6. HAZARDS IDENTIFICATION

Classification according to Regulation (EC) No. 1272/2008 [CLP]

**Flammable liquids, Category 2 :** H225

**Serious eye damage/eye irritation, Category 2 :** H319

Full text of hazard classes and H-statements : see section 16 . Adverse physicochemical, human health and environmental effects.

Highly flammable liquid and vapour. Causes serious eye irritation.

**Labelling according to Regulation (EC) No. 1272/2008 [CLP]**

**Hazard Numbers (CLP) :**

GHS02 , GHS07

**Signal word (CLP) :**

Danger

**Hazard statements (CLP) :**

H225 - Highly flammable liquid and vapour

H319 Causes serious eye irritation

**Precautionary statements (CLP) :**

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

P233 - Keep container tightly closed

P280 - Wear protective clothing, eye protection, protective gloves

P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing P337+P313 - If eye irritation persists: Get medical advice/attention

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

## SECTION 7. TOXICOLOGICAL INFORMATION

**Acute toxicity (oral) :**

Not classified (Based on available data, the classification criteria are not met)

**Acute toxicity (dermal) :**

Not classified (Based on available data, the classification criteria are not met)

**Acute toxicity (inhalation) :**

Not classified (Based on available data, the classification criteria are not met)

butanone (78-93-3)	
LD50 oral rat	> 2000 mg/kg (OECD 423 method)
LD50 dermal rabbit	> 10 mg/l (male; (OECD 402 method)
ethanol (64-17-5)	
LD50 oral rat	10470 mg/kg (OECD 401 method)
LC50 inhalation rat (Vapours - mg/l/4h)	20000 mg/l/4h

ethanol (64-17-5)	
NOAEL (chronic, oral, animal/male, 2 years)	> 4400 mg/kg bodyweight (EPA OPPTS 870.4200)
NOAEL (chronic, oral, animal/female, 2 years)	> 4250 mg/kg bodyweight (EPA OPPTS 870.4200)



**Skin corrosion/irritation :**

Not classified (Based on available data, the classification criteria are not met) pH: 1 - 3 (500g/l; 20°C)

**Serious eye damage/irritation :**

Causes serious eye irritation. pH: 1 - 3 (500g/l; 20°C)

**Respiratory or skin Sensitization :**

Not classified (Based on available data, the classification criteria are not met)

**Germ cell mutagenicity :**

Not classified (Based on available data, the classification criteria are not met)

**Carcinogenicity :**

Not classified (Based on available data, the classification criteria are not met)

**Reproductive toxicity :**

Not classified (Based on available data, the classification criteria are not met)

**STOT-single exposure :**

Not classified (Based on available data, the classification criteria are not met)

**STOT-repeated exposure :**

Not classified (Based on available data, the classification criteria are not met)

**Aspiration hazard :**

Not classified (Based on available data, the classification criteria are not met)

## SECTION 8. FIRST AID MEASURES

butanone (78-93-3)	
NOAEC (inhalation, rat, vapour, 90 days)	5041 ppmv/6h/day

**First-aid measures general :**

In all cases of doubt, or when symptoms persist, seek medical attention.

**First-aid measures after Inhalation :**

Remove person to fresh air and keep comfortable for breathing.

**First-aid measures after skin contact :**

Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing.

**First-aid measures after eye contact :**

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

**First-aid measures after ingestion :**

Rinse mouth out with water. Spit. Drink plenty of water. Do NOT induce vomiting. Vomiting: prevent asphyxia/aspiration pneumonia. Call a poison center or a doctor if you feel unwell.

**Symptoms/effects after inhalation :**

May cause respiratory irritation. Cough. Causes eyes to water.

**Symptoms/effects after eye contact :**

Eye irritation.

## SECTION 9. FIRE FIGHTING MEASURES

**Suitable extinguishing media :**

Water spray. Dry powder. Foam. Carbon dioxide.

**Unsuitable extinguishing media :**

Strong water jet.

**Fire hazard :**

Highly flammable liquid and vapour.

**Hazardous decomposition products in case of fire :**

Toxic fumes may be released. Carbon monoxide. Carbon dioxide. Vapours are heavier than air. Flash back possible over important distance.

**Firefighting instructions :**

Protect container with water spray.

**Protection during firefighting :**

Do not attempt to act without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing

**Other information :**

Do not allow run-off from firefighting to enter drains or water courses. Disposal must be done according to official regulations.

## SECTION 10. ACCIDENTAL RELEASE MEASURES

**General measures :**

Prohibit unauthorized persons. Do not smoke. Remove ignition sources. Wear breathing apparatus if exposed to vapors/dusts/aerosols.

**Emergency procedures :**

Ventilate spillage area. No open flames, no sparks, and no smoking. Avoid contact with skin and eyes.

**Protective equipment :**

Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

**Methods for cleaning up :**

Take up liquid spill into a noncombustible material e.g.: sand, earth, vermiculite kieselguhr, powdered limestone. Take up mechanically (sweeping, shoveling) and collect in suitable container for disposal. Notify authorities if product enters sewers or public waters.

**Other information :**

Disposal must be done according to official regulations  
Information for safe handling. See section 7. Concerning personal protective equipment to use, see section 8. For further information refer to section 13. Prevent entry to sewers and public waters. Avoid sub-soil penetration.

## SECTION 11. HANDLING AND STORAGE

**Precautions for safe handling :**

Ensure good ventilation of the work station. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapours may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Avoid contact with skin and eyes. Avoid aerosol building. Do not breathe spray, mist, vapors. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

**Hygiene measures :**

Ground/bond container and receiving equipment.

**Technical measures :**

**Storage conditions :**

Store in a well-ventilated place. Keep cool. Keep container tightly closed.

**Heat and ignition sources :**

Keep away from heat and direct sunlight.

**Do not use :** Aerosols.  
Keep away from food, drink, and animal feeding stuffs. Strong oxidizing agent.

## SECTION 12. ECOLOGICAL INFORMATION

**Acute aquatic toxicity :** Not classified (Based on available data, the classification criteria are not met)  
**Chronic aquatic toxicity :** Not classified (Based on available data, the classification criteria are not met)

butanone (78-93-3)	
LC50 fish 1	2993 ( $\geq 0$ ) mg/l (96h; Pimephales promelas;(OECD 203 method))
EC50 Daphnia 1	308 mg/l EC50 48h - Daphnia magna [mg/l]; (OECD 202 method))
EC50 72h algae (1)	1972 mg/l (72h; Pseudokirchneriella subcapitata; (OECD 201 method))
ethanol (64-17-5)	
LC50 fish 1	14200 mg/l (96 h; US EPA method E03-05)
LC50 fish 2	8140 mg/l Leuciscus idus (golden orfe)
EC50 Daphnia 1	5012 mg/l (48 h; ASTM E729-80)

**Persistence and degradability :** Biodegradable.

butanone (78-93-3)	
Persistence and degradability	Readily biodegradable.
Biodegradation	98 % (28 d; OECD 301)
ethanol (64-17-5)	
Persistence and degradability	Readily biodegradable.
Biodegradation	97 % (28 d)

### Bioaccumulative Potential

butanone (78-93-3)	
Log Pow	0.3 (40°C; (OECD 117 method))
ethanol (64-17-5)	
Log Kow	-0.31
Bioaccumulative potential	Bioaccumulation unlikely.

### Mobility is soil

ethanol (64-17-5)	
Ecology - soil	No additional information available.

### Results of PBT and vPvB assessment

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII	
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII	
Component	
butanone (78-93-3)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
ethanol (64-17-5)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

### SECTION 13. TRANSPORT INFORMATION

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
1170	1170	1170	1170	1170
14.2. UN proper shipping name				
Ethanol solution (ethyl alcohol solution)	Ethanol solution (ethyl alcohol solution)	Ethyl alcohol solution	Ethanol solution (ethyl alcohol solution)	Ethanol solution (ethyl alcohol solution)
Transport document description				
UN 1170 ethanol solution (ethyl alcohol solution), 3, II, (D/E)	UN 1170 ethanol solution (ethyl alcohol solution), 3, II	UN 1170 Ethyl alcohol solution, 3, II	UN 1170 ethanol solution (ethyl alcohol solution), 3, II	UN 1170 ethanol solution (ethyl alcohol solution), 3, II
14.3. Transport hazard class(es) Flammability				
3	3	3	3	3
14.4. Packing group				
II	II	II	II	II
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available				

#### Overland transport

Classification code (ADR) : F1  
 Special provisions (ADR) : 144, 601  
 Limited quantities (ADR) : 11  
 Excepted quantities (ADR) : E2  
 Transport category (ADR) : 2  
 Hazard identification number (Kemler No.): 33  
 Orange plates :



Tunnel restriction code (ADR) : D/E

#### Transport by sea

Special provisions (IMDG) : 144  
 Limited quantities (IMDG) : 1 L  
 Excepted quantities (IMDG) : E2  
 EmS-No. (Fire) : F-E  
 EmS-No. (Spillage) : S-D

#### Air transport

PCA Excepted quantities (IATA) : E2  
 PCA Limited quantities (IATA) : Y341  
 PCA limited quantity max net quantity (IATA) : 1L  
 PCA packing instructions (IATA) : 353  
 PCA max net quantity (IATA) : 5L  
 CAO max net quantity (IATA) : 60L  
 Special provisions (IATA) : A3, A58, A180

#### Inland waterway transport

Classification code (ADN) : F1  
 Special provisions (ADN) : 144, 601



Limited quantities (ADN) :	1 L
Excepted quantities (ADN) :	E2
Carriage permitted (ADN) :	T
<b>Rail transport</b>	
Classification code (RID) :	F1
Special provisions (RID) :	144, 601
Limited quantities (RID) :	1L
Excepted quantities (RID) :	E2
Transport category (RID) :	2
Hazard identification number (RID) :	33
<b>Transport in bulk according to Annex II of Marpol and the IBC Code :</b>	
	Not applicable

#### SECTION 14. DISPOSAL CONSIDERATIONS

<b>Waste treatment methods :</b>	Disposal must be done according to official regulations. European waste catalogue. Do not dispose off with domestic waste. Do not discharge into drains or the environment.
<b>Additional information :</b>	Flammable vapors may accumulate in the container.
<b>European List of Waste (LoW) code :</b>	08 01 11* - waste paint and varnish containing organic solvents or other dangerous substances

#### SECTION 15. REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture Dir. 98/24/EC (Risks related to chemical agents at work) Dir. 2000/39/EC (Occupational exposure limit values) Dir. 2006/8/EC Regulation (EC) n. 1907/2006 (REACH) Regulation (EC) n. 1272/2008 (CLP) Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013 Regulation (EU) n. 453/2010 (Annex I) Regulation (EU) n. 286/2011 (ATP 2 CLP) Regulation (EU) n. 618/2012 (ATP 3 CLP) Regulation (EU) n. 487/2013 (ATP 4 CLP) Regulation (EU) n. 944/2013 (ATP 5 CLP) Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications: Restrictions related to the product: Restriction 3 Restriction 40 Restrictions related to the substances contained: No restriction. REACH Regulation (1907/2006) – All. XVII: N.A. Legislative Decree no. 81 of the 9th of April 2008 Title XI "Dangerous substances - Chapter I - Protection against chemical agents" Directive 2000/39/CE and s.m.i. (Professional threshold limit) Legislative Decree no. 152 of the 3rd of April 2006 and subsequent modifications and additions. (Environmental regulations) Directive 105/2003/CE (Seveso III): N.A

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**DATE ISSUED :** June 5, 2020

**REVIEWED :** June 21, 2020

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