

Industrial Protective Coating

Product code: RN-IPC

A nanotechnology-enhanced, solvent-borne epoxy protective coating engineered to deliver long-term anti-corrosion and abrasion resistance on metal and concrete substrates.

SECTION 1 - IDENTIFICATION

Product name	Industrial Protective Coating
Product code	RN-IPC
Product type	Nano-reinforced solvent-borne epoxy protective coating (liquid)
Relevant identified uses	Industrial anti-corrosion and abrasion-resistant coating for steel, cast iron, galvanized metal and concrete substrates. Professional/industrial application only.
Uses advised against	Consumer/domestic use; food-contact surfaces; any use not described in the technical data sheet.
Manufacturer	Reinste Nano Ventures Pvt. Ltd., A-118, Level II, Sector-63, Noida, U.P. 201301, India
Contact	info@reinste.com www.reinste.com
Emergency telephone	Contact Reinste during business hours (IST). For medical emergencies, call your nearest poison control centre / hospital.

SECTION 2 - HAZARD IDENTIFICATION

GHS classification of the mixture: Flammable Liquid Category 3; Skin Irritation Category 2; Eye Irritation Category 2; Skin Sensitization Category 1 (epoxy constituents); Specific Target Organ Toxicity - Single Exposure Category 3 (respiratory irritation and narcotic effects); Carcinogenicity Category 2; Aspiration Hazard Category 1; Hazardous to the Aquatic Environment - Chronic Category 2.

Signal word: DANGER.

- H226 - Flammable liquid and vapour.
- H304 - May be fatal if swallowed and enters airways.
- H315 - Causes skin irritation.
- H317 - May cause an allergic skin reaction.
- H319 - Causes serious eye irritation.
- H335 - May cause respiratory irritation.
- H336 - May cause drowsiness or dizziness.
- H351 - Suspected of causing cancer (inhalation).
- H411 - Toxic to aquatic life with long lasting effects.
- P210 - Keep away from heat, sparks, open flames and hot surfaces. No smoking.
- P260/P271 - Do not breathe vapours or spray mist; use only outdoors or in a well-ventilated area.
- P280 - Wear protective gloves, protective clothing, eye and face protection.
- P303+P361+P353 / P305+P351+P338 - IF ON SKIN or IN EYES: remove contaminated clothing, rinse skin/eyes thoroughly.
- P501 - Dispose of contents/container in accordance with local and national regulations.

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Mixture. Hazardous components are listed below with representative concentration ranges; exact composition is proprietary and lot-specific. Nano-scale amorphous silica and functional additives are bound within the resin matrix in the cured film.

Xylene (mixed isomers) - CAS 1330-20-7 / EC 215-535-7	15 - 25 wt% Flam. Liq. 3, Acute Tox. 4, Skin Irrit. 2, STOT SE 3
n-Butyl acetate - CAS 123-86-4 / EC 204-658-1	5 - 10 wt% Flam. Liq. 3, STOT SE 3
Ethylbenzene - CAS 100-41-4 / EC 202-849-4	3 - 7 wt% Flam. Liq. 2, Acute Tox. 4, Carc. 2, STOT RE 2
Bisphenol-A / epichlorohydrin epoxy resin (MW <=700) - CAS 25068-38-6	20 - 30 wt% Skin Irrit. 2, Eye Irrit. 2, Skin Sens. 1, Aquatic Chronic 2
Zinc phosphate (anti-corrosive pigment) - CAS 7779-90-0 / EC 231-944-3	5 - 15 wt% Aquatic Acute 1, Aquatic Chronic 1
Titanium dioxide - CAS 13463-67-7 / EC 236-675-5	3 - 8 wt% Not classified (bound in matrix)
Synthetic amorphous / nano-silica (SiO2) - CAS 7631-86-9	2 - 5 wt% Not classified
Inert extenders (talc, barium sulfate)	Balance Not classified

SECTION 4 - FIRST-AID MEASURES

- Inhalation: Move the person to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, give oxygen; if not breathing, give artificial respiration and seek medical attention.
- Skin contact: Remove contaminated clothing. Wash affected skin with plenty of soap and water. Do NOT use solvents or thinners. If irritation or an allergic reaction develops, obtain medical advice.
- Eye contact: Rinse cautiously with water for at least 15 minutes, holding eyelids open. Remove contact lenses if present and easy to do. Continue rinsing and seek medical attention.
- Ingestion: Do NOT induce vomiting (aspiration risk). Rinse mouth with water. Keep at rest and obtain immediate medical attention; show this SDS to medical personnel.
- Most important symptoms: Headache, dizziness, drowsiness, respiratory and eye/skin irritation; possible allergic dermatitis on repeated contact.
- Note to physician: Treat symptomatically. Aspiration of product into the lungs may cause chemical pneumonitis.

SECTION 5 - FIRE-FIGHTING MEASURES

- Suitable extinguishing media: Alcohol-resistant foam, dry chemical powder, carbon dioxide (CO2), or water fog/spray.
- Unsuitable media: Do NOT use a direct high-pressure water jet, which may spread the fire.
- Specific hazards: Flammable liquid and vapour. Vapours are heavier than air and may travel to an ignition source and flash back. Combustion produces carbon oxides, dense black smoke and irritating/toxic decomposition products.
- Protective equipment for firefighters: Wear self-contained breathing apparatus (SCBA) and full protective clothing. Cool closed containers exposed to fire with water spray to prevent pressure build-up.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

- Personal precautions: Eliminate all ignition sources (no smoking, flames or sparks). Ensure adequate ventilation. Avoid breathing vapour and spray mist. Wear appropriate PPE (Section 8).
- Environmental precautions: Do not allow product to enter drains, sewers, watercourses or soil. Contain spills with bunding. Notify authorities if significant release to the environment occurs (product is toxic to aquatic life).
- Methods for containment/clean-up: Contain and absorb spillage with non-combustible inert material (sand, earth, vermiculite). Collect into labelled, sealable containers for disposal. Clean residual film with a suitable solvent, observing fire precautions. Do not flush to drains.

SECTION 7 - HANDLING AND STORAGE

- Handling: Use only in well-ventilated areas or with local exhaust ventilation. Keep away from heat, sparks, open flame and hot surfaces. Use non-sparking tools and ground/bond containers when transferring to prevent static discharge. Avoid contact with skin and eyes and inhalation of vapour/spray mist. Do not eat, drink or smoke while handling.
- Nanomaterial precaution: When sanding, grinding or abrading cured film, avoid generation and inhalation of dust; use local exhaust and respiratory protection to prevent exposure to airborne particulates.
- Storage: Store in a cool, dry, well-ventilated area away from ignition sources, oxidizers and direct sunlight. Keep containers tightly closed and upright. Recommended storage temperature 5-30 degrees C. Store in accordance with local flammable-liquid regulations.
- Shelf life: Typically 12 months in unopened original containers when stored as directed.
- Incompatible materials: Strong oxidizing agents, strong acids and bases, amines (reactive with epoxy).

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Provide adequate general and local exhaust ventilation to keep airborne concentrations below the occupational exposure limits. Representative occupational exposure limits (verify against the current Indian Factories Act Schedule and ACGIH TLVs):

Xylene	TWA 100 ppm (435 mg/m ³); STEL 150 ppm
Ethylbenzene	TWA 100 ppm (435 mg/m ³)
n-Butyl acetate	TWA 150 ppm; STEL 200 ppm
Titanium dioxide	10 mg/m ³ (total inhalable dust)
Synthetic amorphous silica	Keep airborne dust as low as reasonably achievable; ~6 mg/m ³ as general nuisance/inhalable guidance
Respiratory protection	Organic-vapour respirator (A-type / A2) during application; combined A2-P filter or air-supplied respirator for spraying or when abrading cured film
Hand protection	Nitrile or butyl rubber gloves; observe breakthrough time and replace as needed
Eyeface protection	Chemical safety goggles; face shield during spraying
Body protection	Anti-static, solvent-resistant coveralls and safety footwear

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical state / form	Viscous liquid (pigmented coating)
Colour	As specified per shade (e.g. grey, red-oxide, custom)
Odour	Characteristic aromatic solvent odour
pH	Not applicable (non-aqueous)
Flash point	Approx. 25 - 33 degrees C (closed cup)
Initial boiling point	Approx. 136 - 140 degrees C (solvent-dependent)
Flammability	Flammable liquid and vapour
Explosive limits (vapour)	Approx. 1.0 - 7.0 vol% in air
Vapour density	>1 (heavier than air)
Relative density	Approx. 1.2 - 1.5 g/cm ³ (shade-dependent)
Solubility in water	Insoluble / immiscible
Viscosity	Thixotropic; supply viscosity 80 - 140 KU (product-specific)
VOC content	Approx. 350 - 450 g/L (product-specific)
Solids content by volume	Approx. 55 - 70%
Auto-ignition temperature	>400 degrees C (solvent-dependent)

SECTION 10 - STABILITY AND REACTIVITY

- Reactivity: Not reactive under normal conditions of use and storage.
- Chemical stability: Stable when stored as directed in closed original containers.
- Possibility of hazardous reactions: Reaction with amine curing agents or strong oxidizers is exothermic; uncontrolled polymerization is not expected in the supplied product.
- Conditions to avoid: Heat, sparks, open flames, hot surfaces and prolonged exposure to direct sunlight.
- Incompatible materials: Strong oxidizers, strong acids/bases and amines.
- Hazardous decomposition products: Thermal decomposition/combustion yields carbon monoxide, carbon dioxide, dense smoke and irritating organic vapours.

SECTION 11 - TOXICOLOGICAL INFORMATION

- Acute toxicity: Low-to-moderate acute toxicity; based on solvent content, harmful by inhalation and if swallowed. Xylene oral LD50 (rat) ~3,500-4,300 mg/kg.
- Skin/eye: Causes skin and serious eye irritation; repeated/prolonged contact defats the skin and may cause dermatitis.
- Sensitization: Epoxy resin constituents may cause allergic skin reactions (sensitization).
- STOT single exposure: Vapours may cause respiratory irritation, headache, dizziness and drowsiness (narcotic effect) at high concentrations.
- Carcinogenicity: Contains ethylbenzene, classified Carc. 2 (suspected human carcinogen by inhalation; IARC Group 2B). Titanium dioxide is IARC Group 2B when inhaled as respirable dust - relevant only to dust from abrading the cured film.
- Aspiration hazard: May be fatal if swallowed and enters airways.
- Chronic effects: Prolonged or repeated overexposure to solvent vapour may affect the central nervous system.

SECTION 12 - ECOLOGICAL INFORMATION

- Ecotoxicity: Toxic to aquatic life with long-lasting effects (H411). Zinc phosphate pigment is very toxic to aquatic organisms (Aquatic Acute 1 / Chronic 1).
- Persistence and degradability: Solvent components are volatile and partly biodegradable; the cured polymer film is not readily biodegradable.
- Bioaccumulation: Ethylbenzene and xylene have moderate bioaccumulation potential.
- Mobility: Product is immiscible with water; spilled liquid may penetrate soil and contaminate groundwater.
- Do not allow the product to enter drains, watercourses or soil.

SECTION 13 - DISPOSAL CONSIDERATIONS

- Dispose of surplus product, cured residues and contaminated packaging as hazardous waste through an authorized waste-management contractor, in accordance with the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 (India) and local regulations.
- Do not empty into drains, sewers or the environment.
- Empty containers retain product residue (liquid and/or vapour) and may be hazardous - do not cut, weld, braze or incinerate uncleaned containers.
- Waste solvent should be recovered or incinerated at a licensed facility.

SECTION 14 - TRANSPORT INFORMATION

UN number	UN 1263
UN proper shipping name	PAINT (contains xylene, ethylbenzene)
Transport hazard class	3 (Flammable liquid)
Packing group	III
Environmental hazard	Marine pollutant / Environmentally hazardous (contains zinc phosphate)
IMDG EmS	F-E, S-E
ADR/RID tunnel restriction code	(D/E)
Special precautions	Keep away from ignition sources; secure packages against movement; ship in approved UN-marked packaging

SECTION 15 - REGULATORY INFORMATION

- Classified and labelled in accordance with GHS (Rev.) principles as adopted in India.
- Applicable Indian regulations: The Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 (as amended); the Factories Act, 1948; the Petroleum Act, 1934 and Petroleum Rules, 2002 (flammable liquid storage); the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.
- Transport of dangerous goods governed by the Motor Vehicles Act / CMV Rules, IMDG Code (sea) and IATA/ICAO (air).
- A workplace chemical safety assessment (risk assessment) should be conducted by the user prior to use.

SECTION 16 - OTHER INFORMATION

This Safety Data Sheet is a representative document prepared for the product class and is intended for guidance only. The controlled, current version bearing lot-specific composition, VOC and physical data is available from Reinste Nano Ventures on request.

The information herein is based on our present knowledge and is provided in good faith to describe the product with respect to health and safety requirements. It does not constitute a warranty of any property. Users are responsible for determining the suitability and safety of the product for their specific application and for complying with all applicable laws and regulations.

Key H-statements	H226, H304, H315, H317, H319, H335, H336, H351, H411
Prepared by	Reinste Nano Ventures Pvt. Ltd. - Technical & Regulatory Affairs
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