

PRECISION COATINGS SAFETY DATA SHEET

Section 1. Identification

GHS product identifier: Reflect 3000 Infra-Red Reflective Finish Coat
Product number: Reflect 3000 Infra-Red Reflective Finish Coat
Product use: Surface Coating
Restrictions on use: None known
Manufacture/Supplier: Precision Coatings
Address: 1940 E. Trafficway
Springfield, MO 65802
Telephone: 417-862-5738
FAX: 417-862-8874
Website: www.precisioncoatingsinc.com
Emergency telephone number: 800-424-9300 Chemtrec Contract CCN675735

Section 2. Hazards identification

OSHA/HCS status: This material is considered hazardous by the OSHA Hazardous Communication Standard (29 CFR 1910.1200).

Hazard classification:

Physical hazards: Flammable Liquids: Category 3

Health hazards: Causes Skin Irritation Category 2
Serious Eye Damage/Eye Irritation: Category 2A
Carcinogenicity: Category 2
Reproductive Toxicology: Category 2

GHS label elements

Hazard pictograms:



Signal word: Warning

Hazard statements: H226: Flammable liquid and vapor.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H351: Suspected of causing cancer.
H361: Suspected of damaging fertility or the unborn child.

Precautionary statements:

Prevention: P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233: Keep container tightly closed.
P240: Ground/bond container and receiving equipment.
P241: Use explosion-proof electrical/ventilating/lighting/equipment.
P242: Use only non-sparking tools.
P243: Take precautionary measures against static discharge.
P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
P264: Wash thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P271: Use only outdoors or in a well-ventilated area.
P272: Contaminated work clothing should not be allowed out of the workplace.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

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Response: P370+P378: In case of fire; Use water spray, carbon dioxide, dry chemical or alcohol foam for extinction.
P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P363: Wash contaminated clothing before reuse.
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+P313: If skin irritation occurs: Get Medical advice/attention.
P337+P313: If eye irritation persists: Get medical advice/attention.
P308+P313: IF exposed or concerned: Get medical advice/attention.

Storage: P403+P233: Store in a well-ventilated place. Keep container tightly closed.
P235: Keep cool.
P405: Store locked up.

Disposal: P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOC): None known.

Section 3. Composition / Information on Ingredients

Components	CAS #	Percent
Parachlorobenzotrifluoride	98-56-6	75-80
Titanium dioxide*	13463-67-7	0-20
Aluminum hydroxide*	21645-51-2	0-3
Silica dioxide, amorphous*	7631-86-9	0-3
Carbon black*	1333-86-4	0-3
Aluminum powder*	7429-90-5	0-3
Acrylic polyol	none	15-25

*Titanium dioxide; aluminum hydroxide; silicone dioxide, amorphous; carbon black and aluminum powder are bound within the product matrix.

Section 4. First aid measures

Eye Contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. In case of irritation from airborne exposure, move to fresh air. Get medical attention promptly.

Skin Contact: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that gas or vapor is still present, the rescuer should wear an appropriate mask of self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Ingestion: Wash out mouth with water. Remove dentures if any. Get medical attention if symptoms occur. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately.

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Most important symptoms/effects, acute

Potential acute health effects

Eye contact:	Causes serious eye irritation.
Skin contact:	Causes skin irritation.
Inhalation:	Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.
Ingestion:	Can cause central nervous system (CNS) depression. Irritating to mouth and stomach.

Over-exposure signs/symptoms

Eye contact:	Adverse symptoms may include the following: pain or irritation. Watering Redness
Skin contact:	Adverse symptoms may include the following: irritation redness
Inhalation:	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
Ingestion	Adverse symptoms may include the following: nausea or vomiting

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician:	Not available
Specific treatments:	Treat symptomatically and supportively.
Protection of first-aiders:	No action shall be taken involving any personal risk or without suitable training. If it is suspected that gas or vapor is still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Section 5. Fire-fighting measures

Suitable extinguishing media: Use dry chemical, carbon dioxide, water spray (fog) or foam.
Unsuitable extinguishing

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media:	Do not use water jet.
Special hazards arising from the substance or mixture:	Flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.
Hazardous thermal decomposition products:	Decomposition products may include the following materials: carbon dioxide, carbon monoxide, smoke, oxides of nitrogen.
Special protective actions for fire-fighters:	Cool closed containers exposed to fire with water. Do not release runoff from fire to drains or watercourses.
Special protective equipment for fire-fighters:	Fire-fighters should wear appropriate protective equipment and self contained breathing apparatus with full face piece operated in the positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:	Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders:	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Methods and material for containment and cleaning up:	Eliminate sources of ignition. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Avoid runoff into storm sewers and ditches which lead to waterways. Use only non-combustible material for clean-up. Recover by pumping (use explosion proof or hand pump). Use clean, non-sparking tools to collect absorbed materials. Eliminate all ignition sources. Prevent additional discharge of material is able to do so safely. Do not touch or walk through spilled material. Collect spilled materials for disposal. Wear appropriate personal protective equipment (see Section 8 Exposure controls/personal protection). Evacuate unnecessary personnel. Do not apply water to the leak.

Section 7. Handling and storage

Precautions for safe handling:	Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Persons with a history of skin sensitization should not be employed in any process in which this product is used. Do not swallow. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not
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enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion proof electrical equipment. Empty containers retain product residue and can be hazardous. Do not reuse container. Ground and bond containers when transferring material. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities:

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls / personal protection

Control parameters

Occupational exposure limits

U.S. ACGIH Threshold Limit Values

Components	Type	Value	Form
Aluminum hydroxide	TWA	1 mg/m ³	Respirable fraction
Titanium dioxide	TWA	10 mg/m ³	
Aluminum powder	TWA	1 mg/m ³	Respirable fraction

U.S. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Titanium dioxide	PEL	15mg/m ³	Total dust
Aluminum powder	PEL	5 mg/m ³	Respirable dust

U.S. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value	Form
Silicon dioxide	TWA	0.8 mg/m ³ 20mppcf	

Appropriate engineering controls:

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Individual protection measures

Hygiene measures:

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection:

Safety glasses equipped with side shields are recommended as minimum protection in industrial settings.

Skin protection

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Hand protection:	Chemical-resistant gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers.
Body protection:	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection:	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection:	Use a properly fitted, air-purifying or supplied-air respirator complying with an approved standard if a risk assessment indicated this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical & Chemical Properties

Appearance

Physical state:	Liquid
Form:	Liquid
Color:	Opaque
Odor:	Pungent
Odor threshold:	Not available
pH:	Not available
Melting point/freezing point:	Not available
Initial boiling point and boiling range:	139.3°C (282.7°F)
Flash point:	42.8°C (109°F) (Tag closed cup)
Evaporation rate:	Not available
Upper/lower flammability or explosive limits:	Not available
Vapor pressure:	Not available
Vapor density:	➤ 1 Air = 1
Relative density:	1.2369-1.1.3569
Solubility(ies):	Insoluble in the following materials: cold water
Partition coefficient: n-octanol/water:	Not available
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available

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Viscosity: Not available

VOC (mixed less water & exempt compounds): Less than 25 grams/liter

Other information: No additional information

Section 10. Chemical stability & reactivity information

Reactivity: None known.

Chemical stability: Stable.

Possibility of hazardous reactions: None known.

Conditions to avoid: All possible sources of ignition (heat, sparks, flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.

Incompatible materials: Strong oxidizing agents. Strong acids. Strong alkalis.

Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Conclusion/summary: Not available

Oral: Not available

Dermal: Not available

Inhalation: Not available

Irritation/Corrosion

Skin: Not available

Eyes: Not available

Respiratory: Not available

Sensitization

Skin: Not available

Respiratory: Not available

Mutagenicity

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Conclusion/Summary: Not available

Carcinogenicity

Conclusion/Summary: Product contains less than 0.2% styrene CAS 100-42-5.
Carcinogenic categories for styrene:
IRAC: 2B
NTP: R
OSHA: None

Titanium dioxide: In lifetime inhalation studies rats were exposed for 2 years to respectively 10, 50 and 250 mg/m³ of respirable TiO₂. Slight lung fibrosis was observed at 50 and 250 mg/m³ levels. Microscopic lung tumors were also observed in 13 percent of the rats exposed to 250 mg/m³, an exposure level that caused lung overloading and impairment of rat lungs clearance mechanisms. In further studies, these tumors were found to occur only under particle overload conditions in a uniquely sensitive species, the rat, and have little or no relevance for humans. The pulmonary inflammatory response to TiO₂ particles exposure was also found to be much more severe in rats than in other rodent species. In February 2006, IARC has re-evaluated Titanium dioxide as pertaining to Group 2B: "possibly carcinogenic to humans", based upon inadequate evidence in humans and sufficient evidence in experimental animals for the carcinogenicity of titanium dioxide. IARC evaluation guidelines consider the generation of tumors, in 2 different studies within the same animal species, to be adequate criteria for an assessment of sufficient evidence.

The conclusions of several epidemiology studies on more than 20000 TiO₂ industry workers in Europe and the USA did not suggest a carcinogenic effect of TiO₂ dust on the human lung. Mortality from other chronic diseases, including other respiratory diseases, was also not associated with exposure to TiO₂ dust. Based upon all available study results, DuPont scientists conclude that titanium dioxide will not cause lung cancer or chronic respiratory diseases in humans at concentrations experienced in the workplace.

Carbon black:

ANIMAL TOXICITY:

Rat, oral, duration 2 years
Effect: no tumors.

Mouse, oral, duration 2 years
Effect: no tumors.

Rat, inhalation, duration 2 years
Target organ: lungs.
Effect: inflammation, fibrosis, tumors.

Note: Tumors in the rat lung are considered to be related to the "lung overload" rather than to a specific chemical effect of carbon black itself in the lung. These effects in rats have been reported in many studies on other poorly soluble inorganic particles and appear to be rat specific (ILSI, 2000). Tumors have not been observed in other species (i.e., mouse and hamster) for carbon black or other poorly soluble particles under similar circumstances and study conditions.

MORTALITY STUDIES (HUMAN DATA):

A study on carbon black production workers in the UK (Sorahan, 2001) found an increased risk of lung cancer in two of the five plants studied; however, the increase was not related to the dose of carbon black. Thus,

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the authors did not consider the increased risk in lung cancer to be due to carbon black exposure. A German study of carbon black workers at one plant (Morfeld, 2006; Buechte, 2006) found a similar increase in lung cancer risk but, like the Sorahan, 2001 (UK study), found no association with carbon black exposure. A large US study of 18 plants showed a reduction in lung cancer risk in carbon black production workers (Dell, 2006). Based upon these studies, the February 2006 Working Group at the International Agency for Research on Cancer (IARC) concluded that the human evidence for carcinogenicity was inadequate (IARC, 2010).

Since the IARC evaluation of carbon black, Sorahan and Harrington (2007) have re-analyzed the UK study data using an alternative exposure hypothesis and found a positive association with carbon black exposure in two of the five plants. The same exposure hypothesis was applied by Morfeld and McCunney (2009) to the German cohort; in contrast, they found no association between carbon black exposure and lung cancer risk and, thus, no support for the alternative exposure hypothesis used by Sorahan and Harrington.

Over, as a result of these detailed investigations, no causative link between carbon black exposure and cancer risk in humans has been demonstrated.

IARC CANCER CLASSIFICATION:

In 2006 IARC re-affirmed its 1995 finding that there is "inadequate evidence" from human health studies to assess whether carbon black causes cancer in humans. IARC concluded that there is "sufficient evidence" in experimental animal studies for the carcinogenicity of carbon black. IARC's overall evaluation is that carbon black is "possibly carcinogenic to humans (Group 2B)". This conclusion was based on IARC's guidelines, which generally require such a classification if one species exhibits carcinogenicity in two or more animal studies (IARC, 2010).

Solvent extracts of carbon black were used in one study of rats in which skin tumors were found after dermal application and several studies of mice in which sarcomas were found following subcutaneous injection. IARC concluded that there was "sufficient evidence" that carbon black extracts can cause cancer in animals (Group 2B).

ACGIH CANCER CLASSIFICATION:

Confirmed Animal Carcinogen with Unknown Relevance to Humans (Category A3 Carcinogen).

Reproductive toxicity

Conclusion/Summary: Not available

Specific target organ toxicity (single exposure): Not available

Specific target organ toxicity (repeated exposure): Not available

Aspiration hazard: Not available

Information on likely routes of exposure: Routes of entry anticipated: Oral, Dermal, Inhalation.

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Potential acute health effects:

Eye contact:	Causes serious eye irritation.
Inhalation:	Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.
Skin contact:	Causes skin irritation.
Ingestion:	Can cause central nervous system (CNS) depression. Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact:	Adverse symptoms may include pain or irritation, watering, redness.
Inhalation:	Adverse symptoms may include nausea or vomiting, headache, drowsiness/fatigue, dizziness/vertigo, unconsciousness.
Skin contact:	Adverse symptoms may include irritation, redness.
Ingestion:	Adverse symptoms may include nausea or vomiting.
Potential chronic health effects:	Overexposure may cause nervous system damage. Overexposure may cause kidney damage. May cause liver disorder (e.g., edema, proteinuria) and damage.

Section 12. Ecological information

Toxicity

Acute toxicity

Fish

Product: Not available

Specified substances:

Aluminum powder LC-50 (96 h): less than or equal to 0.16 mg/l

Aquatic invertebrates

Product: Not available

Chronic toxicity

Fish

Product: Not available

Aquatic invertebrates

Product: Not available

Toxicity to aquatic plants

Product: Not available

Specified substances:

Not available

Persistence and degradability

Biodegradation

Product: Not available

Specified substances:

Not available

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Biological Oxygen Demand Product:	Not available
Specified substances:	Not available
Chemical Oxygen Demand Product:	Not available
Specified substances:	Not available
BOD/COD ratio:	Not available
Bioaccumulative potential:	Not available
Mobility in soil:	Not available
Results of PBT and vPvB assessment:	Not available
Other adverse effects:	Not available

Section 13. Disposal considerations

Disposal methods: Dispose of waste in accordance with all local, state and federal regulations.

Section 14. Transport information

DOT

Basic shipping requirements:	
UN number	UN1263
Proper shipping name	Paint
Hazard class	Flammable Liquid
Labels required	3
Additional information:	
Packaging exceptions	150
Packaging non bulk	173
Packaging bulk	242

IATA

Basic shipping requirements:	
UN Number	1263
Proper shipping name	Paint
Hazard class	3
Packing group	III

Section 15. Regulatory information

US federal regulations

OSHA:	This product is hazardous according to OSHA 29 CFR 1910.1200
SARA Title III Section 313 – Toxic Chemical: Listed Substance:	Styrene CAS 100-42-5
SARA Title III Section 302 Extremely hazardous substances:	None
SARA Title III Section 311/312 Hazard categories:	Immediate (acute) health hazard Delayed (chronic) health hazard Fire hazard

Inventory Status

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Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

* A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State Regulations

California Proposition 65: **Warning:** This product contains a chemical known to the State of California to cause cancer.
Warning: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Massachusetts RTK: Silicon dioxide (CAS 7631-86-9)
Titanium Dioxide (CAS 13463-67-7)

New Jersey RTK: Silicon dioxide (CAS 7631-86-9)
Titanium Dioxide (CAS 13463-67-7)

Pennsylvania RTK: Silicon dioxide (CAS 7631-86-9)
Titanium Dioxide (CAS 13463-67-7)

Section 16. Other Information

Further information HMIS® is a registered trade and service mark of the NPCA

HMIS® ratings
Health: 2
Flammability: 2
Physical hazard: 1

NFPA ratings
Health: 2
Flammability: 2
Instability: 1

Disclaimer The information on this SDS was obtained from sources which we believe to be reliable. However, the information provided is without warranty, expressed or implied, regarding its correctness. Some of the information presented and conclusions drawn herein are from sources other than direct test data on the product itself. The information and recommendations are offered for the user's consideration and examination and should be used to make independent determination of the methods to safeguard workers and the environment. The conditions or methods of handling storage, use and disposal of the product are beyond our control and may be beyond our control and may be beyond our knowledge. For these reasons we do not assume responsibility and expressly disclaim any liability for loss, damage, or expense arising out of or in any way connected with handling, storage, use or disposal of this product. It is the responsibility of the user to comply with all Federal, State and Local laws and regulations.

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