

MATERIAL SAFETY DATA SHEET

BLACK IRON OXIDE (PG III), SOLID

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Brenntag Canada Inc.
43 Jutland Rd.
Toronto, ON
M8Z 2G6
(416) 259-8231

WHMIS#: 00069909
Index: HCl9049/11C
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Website: <http://www.brenntag.ca>

EMERGENCY TELEPHONE NUMBERS (FOR EMERGENCIES INVOLVING CHEMICAL SPILLS OR RELEASE)

Toronto, ON (416) 226-6117
Edmonton, AB (780) 424-1754

Montreal, QC (514) 861-1211
Calgary, AB (403) 263-8660

Winnipeg, MB (204) 943-8827
Vancouver, BC (604) 685-5036

PRODUCT IDENTIFICATION

Product Name: Black Iron Oxide (PG III), Solid.
Chemical Name: Iron Oxide.
Synonyms: Black Oxide Dry BD5099; Black Iron Oxide BK4799-Pure; Black Iron Oxide BK5000-H-ST; Black Iron Oxide BK5099-EDP; Black Iron Oxide TB5600-Toner; Black Iron Oxide BK5599-Pure; Black Dry XB5799; C.I. Pigment Black 11; C.I. 77499; Black Iron Oxide.
Chemical Family: Inorganic Pigment.
Molecular Formula: Fe₃O₄.
Product Use: Pigmentation. Chemical intermediate.

WHMIS Classification / Symbol:

Not WHMIS Regulated.



READ THE ENTIRE MSDS FOR THE COMPLETE HAZARD EVALUATION OF THIS PRODUCT.

2. COMPOSITION, INFORMATION ON INGREDIENTS (Not Intended As Specifications)

| <i>Ingredient</i> | <i>CAS#</i> | <i>ACGIH TLV</i> | <i>% Concentration</i> |
|--|-------------|---|------------------------|
| Iron Oxide (Fe ₃ O ₄) | 1317-61-9 | 5 mg/m ³ as Fe (Dust and Fume) *A4 | 95 - 100 |

A4 = Not classifiable as a human carcinogen. (ACGIH-A4).

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Mechanical hazard. Dust may cause mechanical irritation to skin, eyes and respiratory tract. Low hazard for usual industrial or commercial handling. See "Other Health Effects" Section. Can decompose at high temperatures forming toxic gases. Storage at temperatures above 60 °C may cause the black iron oxide to oxidize, generating heat which could cause surrounding combustibles to burn.

POTENTIAL HEALTH EFFECTS

Inhalation: Product may be mildly irritating to the nose, throat and respiratory tract and may cause coughing and sneezing. Excessive contact with powder may cause drying of mucous membranes of nose and throat due to absorption of moisture and oils. See "Other Health Effects" Section.

| | |
|-----------------------|--|
| Skin Contact: | This product may cause irritation due to abrasive action. Prolonged, confined (especially under the finger nails, under rings or watch bands) or repeated exposure may cause skin irritation. Excessive contact with powder may cause drying of the skin due to absorption of moisture and oils. May cause staining. |
| Skin Absorption: | Not likely to be absorbed through the skin. |
| Eye Contact: | This product may cause irritation, redness and possible damage due to abrasiveness. Excessive contact with powder may cause drying of mucous membranes of the eyes due to absorption of moisture and oils. Product residues on fingers, hands or gloves may contact the eyes and cause eye irritation, redness and pain. May cause staining. |
| Ingestion: | Ingestion is not a likely route of exposure. This product may cause mild gastrointestinal discomfort. |
| Other Health Effects: | Low hazard for usual industrial or commercial handling. In general, long-term exposure to high concentrations of dust may cause increased mucous flow in the nose and respiratory system airways. This condition usually disappears after exposure stops. Controversy exists as to the role exposure to dust has in the development of chronic bronchitis (inflammation of the air passages into the lungs). Other factors such as smoking and general air pollution are more important, but dust exposure may contribute. (4) May cause central nervous system (CNS) depression and pneumoconiosis. CNS depression is characterized by headache, dizziness, drowsiness, nausea, vomiting and incoordination. Severe overexposures may lead to coma and possible death due to respiratory failure. Dust may cause coughing, sneezing and difficulty breathing. In rare cases, long term exposure to high levels of Iron Oxide dusts have been associated with siderosis, a form of pneumoconiosis. Pneumoconiosis is the deposition of dust in the lungs and the tissue's reaction to its presence. When exposure to the dust is severe or prolonged, the lungs' defenses are overwhelmed. |

4. FIRST AID MEASURES

FIRST AID PROCEDURES

| | |
|---------------------|---|
| Inhalation: | If respiratory problems arise, move the victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Obtain medical advice IMMEDIATELY. |
| Skin Contact: | Start flushing while removing contaminated clothing. Wash affected areas thoroughly with soap and water. If irritation, redness, or a burning sensation develops and persists, obtain medical advice. |
| Eye Contact: | Immediately flush eyes thoroughly for 15 minutes with running water. Hold eyelids open during flushing. If irritation persists, repeat flushing. |
| Ingestion: | Do not attempt to give anything by mouth to an unconscious person. If victim is alert and not convulsing, rinse mouth out and give 1/2 to 1 glass of water to dilute material. DO NOT induce vomiting. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. Obtain medical attention IMMEDIATELY. |
| Note to Physicians: | Treat symptomatically. Medical conditions that may be aggravated by exposure to this product include diseases of the skin, eyes or respiratory tract. |

5. FIRE-FIGHTING MEASURES

| <i>Flashpoint (°C)</i> | <i>Aut ignition Temperature (°C)</i> | <i>Flammability Limits in Air (%):</i> | |
|------------------------------------|--|--|-----------------|
| | | <i>LEL</i> | <i>UEL</i> |
| Non-combustible (does not burn). | Not applicable. | Not applicable. | Not applicable. |
| Flammability Class (WHMIS): | Not regulated. | | |
| Hazardous Combustion Products: | Thermal decomposition products are toxic and may include oxides of iron and irritating gases. | | |
| Unusual Fire or Explosion Hazards: | Storage at temperatures above 60 °C may cause the black iron oxide to oxidize, generating heat which could cause surrounding combustibles to burn. Avoid accumulation and dispersion of dust. Do not flush with water as aqueous solutions or powders that become wet render surfaces extremely slippery. At temperatures greater than 80 Degrees Celcius the product will convert to Iron Oxide Red (Fe2O3). (3) Enforce NO SMOKING rules. | | |
| Sensitivity to Mechanical Impact: | Not expected to be sensitive to mechanical impact. | | |

Rate of Burning: Not available.
Explosive Power: Not available.
Sensitivity to Static Discharge: Not expected to be sensitive to static discharge.

EXTINGUISHING MEDIA

Fire Extinguishing Media: Use media appropriate for surrounding fire and/or materials: Foam. Dry chemical, carbon dioxide or water spray.

FIRE FIGHTING INSTRUCTIONS

Instructions to the Fire Fighters: Isolate materials that are not involved in the fire and protect personnel. Do not flush with water as aqueous solutions or powders that become wet render surfaces extremely slippery.

Fire Fighting Protective Equipment: Use self-contained breathing apparatus and protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Information in this section is for responding to spills, leaks or releases in order to prevent or minimize the adverse effects on persons, property and the environment. There may be specific reporting requirements associated with spills, leaks or releases, which change from region to region.

Containment and Clean-Up Procedures: In all cases of leak or spill contact vendor at Emergency Number shown on the front page of this MSDS. Eliminate all sources of ignition. Do not flush with water as aqueous solutions or powders that become wet render surfaces extremely slippery. Wear respirator, protective clothing and gloves. Avoid dry sweeping. Do not use compressed air to clean surfaces. Vacuuming is preferred. Return all material possible to container for proper disposal. Minimize air borne spreading of dust. Collect product for recovery or disposal. Ventilate enclosed spaces. Notify applicable government authority if release is reportable or could adversely affect the environment.

Where a package (drum or bag) is damaged and / or leaking, repair it, or place it into an over-pack drum immediately so as to avoid or minimize material loss and contamination of surrounding environment. Any recovered product can be used for the usual purpose, depending on the extent and kind of contamination.

7. HANDLING AND STORAGE

HANDLING

Handling Practices: Use normal "good" industrial hygiene and housekeeping practices. Avoid accumulation and dispersion of dust. Clean up immediately to eliminate slipping hazard.

Ventilation Requirements: See Section 8, "Engineering Controls".

Other Precautions: Use only with adequate ventilation and avoid breathing dusts. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling. Wash contaminated clothing thoroughly before re-use.

STORAGE

Storage Temperature (°C): Store below 60 °C. (3) At temperatures greater than 80 Degrees Celcius the product will convert to Iron Oxide Red (Fe₂O₃). (3)

Ventilation Requirements: General exhaust is acceptable.

Storage Requirements: Store in a cool, dry and well-ventilated area. Keep away from heat, sparks and flames. Keep containers closed. Avoid moisture contamination. Prolonged storage may result in lumping or caking. Protect against physical damage. Storage at temperatures above 60 °C may cause the black iron oxide to oxidize, generating heat which could cause surrounding combustibles to burn.

Special Materials to be Used for Packaging or Containers: Materials of construction for storing the product include: Multi-layer bags or sacks. Confirm suitability of any material before using.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Recommendations listed in this section indicate the type of equipment, which will provide protection against overexposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

ENGINEERING CONTROLS

Engineering Controls: General exhaust is acceptable. Local exhaust ventilation preferred. Make up air should be supplied to balance air that is removed by local or general exhaust ventilation. Ventilate low lying areas such as sumps or pits where dense dust may collect.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Eye Protection: Safety glasses with side shields are recommended to prevent eye contact. Use chemical safety goggles when there is potential for eye contact. Contact lenses should not be worn when working with this material.

Skin Protection: Gloves and protective clothing made from leather, rubber or plastic should be impervious under conditions of use. Prior to use, user should confirm impermeability. Discard contaminated gloves.

Respiratory Protection: No specific guidelines available. Respiratory protection should not be necessary unless dust is created. 50 mg/m³. An air-supplied respirator if concentrations are higher or unknown.

If while wearing a respiratory protection, you can smell, taste or otherwise detect anything unusual, or in the case of a full facepiece respirator you experience eye irritation, leave the area immediately. Check to make sure the respirator to face seal is still good. If it is, replace the filter, cartridge or canister. If the seal is no longer good, you may need a new respirator. (4)

Other Personal Protective Equipment: Wear regular work clothing. The use of coveralls is recommended. Locate safety shower and eyewash station close to chemical handling area. Take all precautions to avoid personal contact.

EXPOSURE GUIDELINES

| SUBSTANCE | ACGIH TLV (STEL) | OSHA PEL (TWA) | OSHA PEL (STEL) | NIOSH REL (TWA) | NIOSH REL (STEL) |
|--|-----------------------------|-----------------------------|----------------------------|--|-----------------------------|
| Iron Oxide (Fe ₃ O ₄) | --- | 10 mg/m ³ (Fume) | --- | 5 mg/m ³ as Fe (Dust and Fume) | --- |

9. PHYSICAL AND CHEMICAL PROPERTIES (Not intended as Specifications)

Physical State: Solid.
Appearance: Black powder.
Odour: Odourless.
Odour Threshold (ppm): Not available.
Boiling Range (°C): Not applicable.
Melting/Freezing Point (°C): 1 597. (4)
Vapour Pressure (mm Hg at 20° C): Not applicable.
Vapour Density (Air = 1.0): Not applicable.
Relative Density (g/cc): 4.8 - 5.1 (3)
Bulk Density: Not available.
Viscosity: Not applicable.
Evaporation Rate (Butyl Acetate = 1.0): Not applicable.
Solubility: Not soluble in water.
% Volatile by Volume: 0. (3)
pH: Not available.
Coefficient of Water/Oil Distribution: Not available.
Volatile Organic Compounds (VOC): Not applicable.
Flashpoint (°C): Non-combustible (does not burn).

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY

Under Normal Conditions: Stable.
Under Fire Conditions: Not flammable. At temperatures greater than 80 Degrees Celcius the product will convert to Iron Oxide Red (Fe₂O₃). (3)
Hazardous Polymerization: Will not occur.

Conditions to Avoid: High temperatures, sparks, open flames and all other sources of ignition. Avoid moisture contamination. Avoid direct sunlight. Minimize air borne spreading of dust. Storage at temperatures above 60 °C may cause the black iron oxide to oxidize, generating heat which could cause surrounding combustibles to burn.

Materials to Avoid: Strong oxidizers. Lewis or mineral acids. Strong bases. Hydrazine. Hypochlorites. Bromine pentafluoride.

Decomposition or Combustion Products: Thermal decomposition products are toxic and may include oxides of iron and irritating gases.

11. TOXICOLOGICAL INFORMATION

TOXICOLOGICAL DATA:

| SUBSTANCE | LD50 (Oral, Rat) | LD50 (Dermal, Rabbit) | LC50 (Inhalation, Rat, 4h) |
|--|---|------------------------------|-----------------------------------|
| Iron Oxide (Fe3O4) | > 5 000 mg/kg (3) | --- | --- |
| Carcinogenicity Data: | The ingredient(s) of this product is (are) not classed as carcinogenic by ACGIH, IARC, OSHA or NTP. | | |
| Reproductive Data: | No adverse reproductive effects are anticipated. | | |
| Mutagenicity Data: | No adverse mutagenic effects are anticipated. | | |
| Teratogenicity Data: | No adverse teratogenic effects are anticipated. | | |
| Respiratory / Skin Sensitization Data: | None known. | | |
| Synergistic Materials: | None known. | | |
| Other Studies Relevant to Material: | None known. | | |

12. ECOLOGICAL INFORMATION

Ecotoxicity: Not available. May be harmful to aquatic life.

Environmental Fate: Not available. Product has an unaesthetic appearance and can be a nuisance. Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.

13. DISPOSAL CONSIDERATIONS

Deactivating Chemicals: None required.

Waste Disposal Methods: This information applies to the material as manufactured. Reevaluation of the product may be required by the user at the time of disposal since the product uses, transformations, mixtures and processes may influence waste classification. Dispose of waste material at an approved (hazardous) waste treatment/disposal facility in accordance with applicable local, provincial and federal regulations. Do not dispose of waste with normal garbage, or to sewer systems.

Safe Handling of Residues: Empty containers retain product residue. No special treatment required.

Disposal of Packaging: Recycling is encouraged. Treat package in the same manner as the product. Empty package may be disposed of with normal garbage.

14. TRANSPORTATION INFORMATION

CANADIAN TDG ACT SHIPPING DESCRIPTION:

SELF-HEATING SOLID, INORGANIC, N.O.S. (Black Iron Oxide), Class 4.2, UN3190, PG III.

Label(s): Substances Liable To Spontaneous Combustion. Placard: Substances Liable To Spontaneous Combustion.

ERAP Index: ----- Exemptions: Not regulated in package sizes less than or equal to 25 kg. (3)

US DOT CLASSIFICATION (49CFR 172.101, 172.102):

SELF-HEATING SOLID, INORGANIC, N.O.S. (Black Iron Oxide), Class 4.2, UN3190, PG III.

Label(s): Spontaneously Combustible. Placard: Spontaneously Combustible.

CERCLA-RQ: Not available. Exemptions: Not regulated in package sizes less than or equal to 25 kg. (3)

15. REGULATORY INFORMATION

CANADA

CEPA - NSNR: All components of this product are included on the DSL.

CEPA - NPRI: Not included.

Controlled Products Regulations Classification (WHMIS):

Not WHMIS Regulated.

USA

Environmental Protection Act: All components of this product are included on the TSCA inventory.

OSHA HCS (29CFR 1910.1200): Not regulated.

NFPA: 0 Health, 1 Fire, 0 Reactivity (3)

HMIS: 0 Health, 1 Fire, 0 Reactivity (3)

INTERNATIONAL

Not available.

16. OTHER INFORMATION

REFERENCES

1. RTECS-Registry of Toxic Effects of Chemical Substances, Canadian Centre for Occupational Health and Safety RTECS database.
2. Clayton, G.D. and Clayton, F.E., Eds., Patty's Industrial Hygiene and Toxicology, 3rd ed., Vol. IIA,B,C, John Wiley and Sons, New York, 1981.
3. Supplier's Material Safety Data Sheet(s).
4. CHEMINFO chemical profile, Canadian Centre for Occupational Health and Safety, Hamilton, Ontario, Canada.
5. Guide to Occupational Exposure Values, 2011, American Conference of Governmental Industrial Hygienists, Cincinnati, 2011.
6. Regulatory Affairs Group, Brenntag Canada Inc.
7. The British Columbia Drug and Poison Information Centre, Poison Managements Manual, Canadian Pharmaceutical Association, Ottawa, 1981.

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Brenntag Canada Inc. will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This Material Safety Data Sheet is valid for three years.

To obtain revised copies of this or other Material Safety Data Sheets, contact your nearest Brenntag Canada Regional office.

British Columbia: 20333-102B Avenue, Langley, BC, V1M 3H1
Phone: (604) 513-9009 Facsimile: (604) 513-9010

Alberta: 6628 - 45 th. Street, Leduc, AB, T9E 7C9
Phone: (780) 986-4544 Facsimile: (780) 986-1070

Manitoba: 681 Plinquet Street, Winnipeg, MB, R2J 2X2
Phone: (204) 233-3416 Facsimile: (204) 233-7005

Ontario: 43 Jutland Road, Toronto, ON, M8Z 2G6
Phone: (416) 259-8231 Facsimile: (416) 259-5333

Black Iron Oxide (PG III), Solid
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Brenntag Canada Inc.
Date of Revision: 2011 July 12

Quebec: 2900 Jean Baptiste Des., Lachine, PQ, H8T 1C8
Phone: (514) 636-9230 Facsimile: (514) 636-0877

Atlantic: A-105 Akerley Boulevard, Dartmouth, NS, B3B 1R7
Phone: (902) 468-9690 Facsimile: (902) 468-3085

Prepared By: Regulatory Affairs Group, Brenntag Canada Inc., (416) 259-8231.