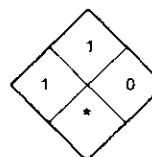




MATERIAL SAFETY DATA SHEET

NFPA HAZARD SYMBOL*



4-Extreme
3-High
2-Moderate
1-Slight
0-Insignificant
*-See Section 16 for
Special Hazards

NORIT MSDS No. 101
Revision Date: November 16, 2000
Revision No. 04

DARCO® Lignite Based Activated Carbons

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

NORIT Americas Inc. Suite 250, Building C, 5775 Peachtree Dunwoody Rd. Atlanta, GA 30342

Emergency Telephone Numbers:

Chem-tel (800)255-3924 (24 hour)

Sales Office(800) 641-9245

Marshall Plant(903) 938-9211

Names used on product labels:

DARCO® 4X12	DARCO® MRX	DARCO® S-51	HYDRODARCO® C
DARCO® 8x30	DARCO® FGD	DARCO® S-51A	HYDRODARCO® H
DARCO® 12X20	DARCO® FGL	DARCO® S-51CR	HYDRODARCO® R
DARCO® 12X40	DARCO® TRS	DARCO® S-51FF	HYDRODARCO® 816
DARCO® 20X40	DARCO® A-51	DARCO® S-51FFM	HYDRODARCO® 820
DARCO® 20x50	DARCO® FM-1	DARCO® S-51H	HYDRODARCO® 3000
DARCO® 80X325	DARCO® FRUCTOBLEND	DARCO® S-51HF	HYDRODARCO® 4000
DARCO® 12X20 DC	DARCO® GFP	DARCO® S-51HFM	PETRODARCO® 4x10
DARCO® 12X20 LI	DARCO® INSUL	HYDRODARCO® B	PETRODARCO® 8X30
DARCO® 20X40 LI	DARCO® PREMIUM	HYDRODARCO® W	GRO-SAFE®
DARCO® 12x20 PT			

DARCO®, GRO-SAFE®, HYDRODARCO®, INSUL®, and PETRODARCO®, are registered trademarks of NORIT Americas Inc.

Chemical Name • Activated Carbon

Product Use • Liquid and vapor applications (purification, decolorization, separation, and deodorization)

2. COMPOSITION / INFORMATION ON INGREDIENTS

IDENTITY	CAS NO.	%	OSHA HAZARD
Activated Carbon	7440-44-0	100	NO

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Odorless black granules or powder. Activated carbon (especially when wet) can deplete oxygen from air in enclosed spaces, and dangerously low levels of oxygen may result. When workers enter a vessel containing activated carbon, follow procedures for potentially low oxygen. Workers should also take appropriate precautions when dealing with spent (used) activated carbons which may exhibit properties of adsorbed materials.

POTENTIAL HEALTH EFFECTS:

Medical conditions aggravated by exposure: None documented

Routes of Exposure:

- | | | | |
|------------------|--|-------------------|-----------------------|
| Eyes: | • Not corrosive, but like most particulate materials, may cause mild physical irritation. | | |
| Skin: | • Not corrosive and not a primary skin irritant. Mild irritation is possible due to abrasive action of dust. | | |
| Ingestion: | • No known deleterious effects. | | |
| Inhalation: | • Possible mild irritation of respiratory tract due to drying and abrasive actions of dust. | | |
| Chronic Effects: | • IARC: Not listed | • NTP: Not listed | • OSHA: Not regulated |

For additional information, see Section 16.

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4. FIRST AID MEASURES

- Skin: • Wash material off the skin with soap and water. Seek medical attention if irritation occurs.
- Eyes: • Flush with copious amounts of water. Seek medical attention if irritation occurs.
- Ingestion: • Give one or two glasses of water to drink. Seek medical attention if gastrointestinal symptoms develop.
- Inhalation: • Remove to fresh air. Seek medical attention if cough or respiratory symptoms develop.
-

5. FIRE FIGHTING MEASURES

- Flashpoint • Not Applicable.
- Non-flammable • 16CFR1500.44.
- Not Self Heating • UN Manual of Tests and Criteria, Test N.3.
- Flammability Limits in Air • LFL and UFL Not Applicable.

GENERAL HAZARD:

Activated carbon is difficult to ignite and tends to burn slowly (smolder) without producing smoke or flame. Toxic gases will form upon combustion.

FIRE FIGHTING INSTRUCTIONS:

If possible to do safely, move smoldering activated carbon to a non-hazardous area, preferably out of doors. Extinguish fire using water fog, fine water spray, carbon dioxide or foam. Avoid stirring up dust clouds.

FIRE FIGHTING EQUIPMENT:

Fire fighting personnel should wear full protective equipment, including self-contained breathing apparatus (SCBA) for all inside fires and large outdoor fires.

HAZARDOUS COMBUSTION PRODUCTS:

Combustion products may include smoke and oxides of carbon (for example, carbon monoxide). Materials allowed to smolder for long periods in enclosed spaces, may produce amounts of carbon monoxide which reach the lower explosive limit (carbon monoxide LEL = 12.5% in air). Under certain conditions, any airborne dust may be an explosion hazard. Used activated carbon may produce additional combustion products.

6. ACCIDENTAL RELEASE MEASURES

IF A SPILL OR LEAK OCCURS:

Clean up spills in a manner that does not disperse dust into the air. Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure, and removal of material from eyes, skin, and clothing.

DISPOSAL METHOD:

Spent granular activated carbon may be recyclable. Dispose of virgin (unused) carbon (waste or spillage) in a facility permitted for non-hazardous wastes. Spent (used) carbon should be disposed of in accordance with applicable laws.

CONTAINER DISPOSAL:

Do not reuse empty bags. Dispose of in facility permitted for non-hazardous wastes.

7. HANDLING AND STORAGE

- Storage Temperature: • Ambient
- Storage Pressure: • Atmospheric
- Handling: • Follow good handling and housekeeping practices to minimize spills, generation of airborne dusts, and accumulation of dusts on exposed surfaces.
- Use with adequate exhaust ventilation to draw dust away from workers' breathing zones.
- Prevent or minimize exposures to dusts by using appropriate personal protection equipment.
- Wash exposed skin areas thoroughly with soap and water after handling.
- Storage: • Store product in a closed dry container. Maintain good housekeeping. Store away from strong oxidizers such as ozone, liquid oxygen, chlorine, permanganate, etc.



8. EXPOSURE CONTROLS / PERSONAL PROTECTION

- Engineering Controls: • Use local exhaust ventilation to control emissions near the source.
- Eye Protection: • Safety glasses with side shields are recommended for any type of handling. Where eye contact or dusty conditions may be likely, dust tight goggles are recommended. Have eye flushing equipment available.
- Skin Protection: • Avoid skin contact with this product. Wear appropriate dust resistant clothing. Wash contaminated clothing and clean protective equipment before reuse. Wash skin thoroughly after handling.
- Respiratory Protection: • Keep dust exposure to a minimum with engineering and administrative controls. Use appropriate NOISH/MSHA approved particulate respirators if necessary. Observe respirator use limitations specified by NOISH/MSHA or the manufacturer.

Airborne Exposure Guidelines:

Lignite Based Activated Carbons	OSHA PEL* TWA
Total Dust	2.1 mg/m ³ *
Respirable Fraction	0.71 mg/m ³ *

*OSHA and ACGIH have not established specific exposure limits for this material. These guidelines are based on a conservatively high concentration of silica quartz (12%). Actual airborne silica concentrations may be much lower. If so, the PEL or TLV would be higher. No ceiling or short-term exposure limits have been set by OSHA or ACGIH.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point, C:	• NA	Freezing Point, C:	• NA
Bulk Density - Granular Grades	• 21-25 lbs/ft ³	% Volatiles	• NA
Bulk Density - Powder Grades	• 15-35 lbs/ft ³	Solubility in Water	• Insoluble
Vapor Pressure	• NA	Appearance and Odor	• Black granules or powder with no odor
Vapor Density	• NA		
Evaporation Rate	• NA		

NA - Not applicable

10. STABILITY AND REACTIVITY DATA

- Stability: • This product is stable under the specified conditions of storage, shipment and use.
- Incompatibility: • Contact with strong oxidizers such as ozone, liquid oxygen, chlorine, permanganate, etc. may result in rapid combustion. Avoid contact with strong acids.
- Hazardous Decomposition Products: • Oxides of Carbon
- Hazardous Polymerization: • Does not occur.

11. TOXICOLOGICAL INFORMATION

This material is non-toxic in its original state. Used activated carbon may exhibit characteristics of the adsorbed material.

12. ECOLOGICAL INFORMATION

This material, in its original state, is not harmful to the environment. Used activated carbon may exhibit characteristics of the adsorbed material.

13. DISPOSAL CONSIDERATIONS

Lignite based activated carbon, in its original state, is not a hazardous material or hazardous waste. Follow applicable governmental regulations for waste disposal.

Used activated carbon may become classified as a hazardous waste depending upon the application. Follow applicable regulations for disposal.

Recycling (reactivation) may be a viable alternative to disposal. Contact NORIT Americas Inc. for information.



DARCO® Lignite Based Activated Carbons

14. TRANSPORT INFORMATION

DOT (Department of Transportation)

- | | |
|-------------------------|---|
| Proper Shipping Name: | • Activated carbon (Not DOT Regulated). |
| Hazard Class: | • Not applicable. |
| UN/NA Number: | • Not applicable. |
| Packing Group: | • Not applicable. |
| Freight Classification: | • STCC Code - #2899643 NMFC #040560 |
| Manufacturing Site: | • 3200 W. University Ave., Marshall, TX 75670 |
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15. REGULATORY INFORMATION

FEDERAL REGULATIONS:

- | | |
|---|--|
| OSHA Hazard Communication Standard, 29CFR1910.1200: | • See "Particulates not otherwise regulated," in Table Z-1, of 29CFR1910.1000, "Limits For Air Contaminates". |
| CERCLA/SUPERFUND, 40CFR117, 302: | • Notification of spills of this material is not required. |
| SARA/SUPERFUND: | • Section 302 - Extremely Hazardous Substances (40CFR355): This product is not listed as an extremely hazardous substance. |
| | • Section 313 - List Of Toxic Chemicals: This product is not listed. |
| Toxic Substances Control Act, 40CFR710: | • Activated carbon is on the inventory list. |
| Resource Conservation and Recovery Act: | • Activated carbon, in its original state, does not meet the criteria of hazardous waste. |

STATE REGULATIONS:

- | | |
|--|--|
| California Occupational Safety and Health: | • Silica is listed on the "Hazardous Substances List." |
| Massachusetts Substance List: | • Quartz is listed as a hazardous substance. |
| New Jersey Right-to-Know: | • Silica is listed on the Hazardous Substance List. |
| Pennsylvania Right-to-Know: | • Quartz is listed on the Hazardous Substance List. |
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16. OTHER INFORMATION

Activated carbon can be safely stored in any normal storage area, but away from sources of direct heat.

WARNING: Activated carbon (especially when wet) can deplete oxygen from the air, and dangerously low levels of oxygen may result. When workers enter a vessel containing activated carbon, procedures for potentially low oxygen areas should be followed.

Activated carbons are not listed as potential carcinogens by any agency. Activated carbons produced from lignite may contain crystalline silica (< 12%) which has been listed as a potential carcinogen of the lungs by the International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP). Much of the silica is inextricably bound within the particles of activated carbon, and does not present a substantial health hazard. Because NORIT Americas adheres to a very conservative position regarding all health and safety matters, we recommend and follow a practice of requiring respiratory protection whenever there is any evidence of airborne dust.

REVISION SUMMARY:

REV04: Updted product names in Section 1.

REV03: Changed NORIT Americas Inc. address in Section 1. Changed airborne exposure guidelines in Section 8. Non-critical wording changes throughout.

REV02: Changed airborne exposure guidelines in Section 8. Non-critical wording changes throughout. Supersedes the October 1996 issue.

The information herein is given in good faith but no warranty, expressed or implied, is made.