

Material Safety Data Sheet

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BASF CORPORATION
3000 CONTINENTAL DRIVE NORTH

MOUNT OLIVE, NJ 07828
(973) 426-4671

EMERGENCY TELEPHONE: (800) 424-9300 CHEMTREC
(800) 832-HELP (BASF Hotline)

BOTH NUMBERS ARE AVAILABLE DAYS, NIGHTS, WEEKENDS, & HOLIDAYS.

SECTION 1 - PRODUCT INFORMATION

BASF CATALYST R 3-11 G

Product ID: NCI 016391

Common Chemical Name:

DEOXYGENATION CATALYST

Synonyms:

GAS PURIFICATION CATALYST

Molecular Formula:

NOT APPLICABLE

Chemical Family: Heterogeneous Catalyst

Molecular Wt.: NOT APPLICABLE

SECTION 2 - INGREDIENTS

| Chemical Name: | CAS | Amount | |
|-------------------------|-----------|--------|----------|
| Barium Oxide | 1304-28-5 | 1.0 | % |
| PEL/TLV NOT ESTABLISHED | | | |
| Chromium Oxide | 1308-38-9 | < 1.0 | % |
| PEL/TLV NOT ESTABLISHED | | | |
| Magnesium Oxide | 1309-48-4 | < 20.0 | % |
| ACGIH TLV | TWA | 10 | MG/CU. M |
| OSHA PEL | TWA | 15 | MG/CU. M |
| | | 5 | MG/CU. M |
| Sodium Oxide | 1313-59-3 | < 20.0 | % |
| PEL/TLV NOT ESTABLISHED | | | |
| Zinc Oxide | 1314-13-2 | < 1.0 | % |
| OSHA PEL | TWA | 15 | MG/CU. M |
| | | 5 | MG/CU. M |
| Silica | 1343-98-2 | < 30.0 | % |
| PEL/TLV NOT ESTABLISHED | | | |
| Water | 7732-18-5 | < 20.0 | % |
| PEL/TLV NOT ESTABLISHED | | | |
| Graphite | 7782-42-5 | < 20.0 | % |
| ACGIH TLV | TWA | 2 | MG/CU. M |
| OSHA PEL | TWA | 15 | MPPCF |
| Copper Oxide | 1317-38-0 | 35.7 | % |
| PEL/TLV NOT ESTABLISHED | | | |

SECTION 3 - PHYSICAL PROPERTIES

| | | | | | | |
|---------------------|----------------|----------|---------|-------|-------------|---|
| Color: | Greenish-black | | | | | |
| Form/Appearance: | Tablets | | | | | |
| Odor: | Odorless | | | | | |
| | Typical | Low/High | U.O.M. | | | |
| Specific Gravity: | NOT AVAILABLE | | | | | |
| Bulk Density: | 900 | | | KG/M3 | | |
| pH: | 8.5 | | | SU | | |
| pH method: | 100 G/L H2O | | | | | |
| | Typical | Low/High | Deg. | @ | Pressure | |
| Boiling Pt: | NOT AVAILABLE | | | | | |
| Freezing Pt: | NOT AVAILABLE | | | | | |
| Decomp. Tmp: | NOT AVAILABLE | | | | | |
| Solubility in Water | Description: | | Soluble | | | |
| | Typical | Low/High | U.O.M. | @ | Temperature | |
| Solubility: | 0.5 | | G/L | | 20 | C |

SECTION 4 - FIRE AND EXPLOSION DATA

| | | | | |
|---------------------------|--|----------|------|--------|
| | Typical | Low/High | Deg. | Method |
| Flash Point: | NOT AVAILABLE | | | |
| Autoignition: | NOT AVAILABLE | | | |
| Extinguishing Media: | Use water fog, foam or dry chemical extinguishing media. | | | |
| Fire Fighting Procedures: | Firefighters should be equipped with self-contained breathing apparatus and turn out gear. | | | |
| Unusual Hazards: | There are no known unusual fire or explosion hazards. | | | |

SECTION 5 - HEALTH EFFECTS

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Toxicology Test Data:

Rat, Oral LD50 - 1700 MG/KG

Moderately Toxic

Rabbit, Primary Skin Irritation -

DRAIZE: MAX=8

Nonirritating

Rabbit, Eye Irritation -

DRAIZE: MAX=110

Irritating

Acute Overexposure Effects:

Contact with the eyes and skin may result in mechanical irritation.

Acute inhalation overexposure may result in pulmonary edema, pneumoconiosis, metal fume fever and bronchial asthma. Ingestion may result in G.I. disturbances and possible hemorrhage. Renal

SECTION 5 - HEALTH EFFECTS (cont)

failure may occur after a few days. Methemoglobinemia has also been reported.

Inhalation of fumes may result in irritation to the eyes, nose and respiratory system and may produce metal fume fever. Acute ingestion may produce metallic taste, severe nausea, vomiting, abdominal pain, diarrhea and hemolysis.

Where magnesium is burned, magnesium oxide fumes may be produced.

Inhalation of magnesium fumes has been associated with "metal fume fever". Symptoms of metal fume fever include metallic taste, dryness, and irritation of the throat, difficult breathing, weakness, fatigue and fever. Magnesium oxide dust may produce irritation to the eyes and nose and may produce cough. Inhalation of magnesium oxide fumes have been known to produce leukocytosis.

Inhalation of zinc dusts may result in respiratory irritation.

Inhalation of zinc fumes may cause "metal fume fever". Symptoms of metal fume fever include metallic taste, dryness, and irritation of the throat, difficult breathing, weakness, fatigue and fever.

Chronic Overexposure Effects:

Prolonged skin exposure to trivalent chromium compounds may cause dermatitis. Pulmonary disease was reported among workers handling ferrochrome alloys. Repeated inhalation exposures of up to 42 mg/m³ in animal studies have shown lung, liver and kidney damage. Copper oxide has been known to produce testicular atrophy in rats at 0.01 - 1 mg/m³. Chronic exposure may result in anemia and may cause damage to the liver and kidneys.

Chronic inhalation of graphite may result in graphite pneumoconiosis. Symptoms of graphite pneumoconiosis include black phlegm production, difficult breathing, and cough.

Thirteen of nineteen workers in zinc powder factory were reported to exhibit inflammation of the upper respiratory tract after 2 to 3 years of employment. Limited studies on the developmental toxicity of zinc oxide in animals indicate that doses as high as 200 mg/kg have caused reduced fetal body weight and fetal death.

First Aid Procedures - Skin:

Wash affected areas with soap and water. Remove and launder contaminated clothing before reuse. If irritation develops, get medical attention.

First Aid Procedures - Eyes:

Immediately rinse eyes with running water for 15 minutes. If irritation develops, get medical attention.

First Aid Procedures - Ingestion:

If swallowed, dilute with water and immediately induce vomiting. Never give fluids or induce vomiting if the victim is unconscious or having convulsions. Get immediate medical attention.

First Aid Procedures - Inhalation:

Move to fresh air. Aid in breathing, if necessary, and get immediate medical attention.

First Aid Procedures - Notes to Physicians:

Not applicable.

First Aid Procedures - Aggravated Medical Conditions:

No data is available which addresses medical conditions that are generally recognized as being aggravated by exposure to this product.

SECTION 5 - HEALTH EFFECTS (cont)

Please refer to the effects of overexposure section for effects observed in animals.

First Aid Procedures - Special Precautions:

Not applicable.

SECTION 6 - REACTIVITY DATA

Stability Data:

Stable

Incompatibility:

No data available.

Conditions/Hazards to Avoid:

No data available.

Hazardous Decomposition/Polymerization:

Hazardous Decomposition Products: No Data Available.

Polymerization: Does not occur.

Corrosive Properties:

Not corrosive.

Oxidizer Properties:

Not an oxidizer

SECTION 7 - PERSONAL PROTECTION

Clothing:

Gloves, coveralls, apron, boots as necessary to minimize contact.

Eyes:

Chemical Goggles

Respiration:

If dusts are generated, wear an approved dust respirator.

Ventilation:

Use local exhaust to control dusts.

Explosion Proofing:

See Section 4 - Fire and Explosion Data.

Other Personal Protection Data:

Eyewash fountains and safety showers must be easily accessible.

Shower after handling.

SECTION 8 - SPILL-LEAK/ENVIRONMENTAL

General:

Spills should be contained, solidified and placed in suitable containers for disposal in a licensed facility. This material is not regulated by RCRA or CERCLA ("Superfund"). Wear appropriate respiratory protection and protective clothing and provide adequate ventilation during clean-up.

Waste Disposal:

Incinerate or bury in a licensed facility. Do not discharge into waterways or sewer systems without proper authority.

Container Disposal:

Dispose of in a licensed facility. Recommend crushing or other means to prevent unauthorized reuse.

Environmental Toxicity Test Data:

Golden orfe, Static 48 hr LC50 - > 500 MG/L

Practically Nontoxic

SECTION 9 - STORAGE AND HANDLING

General:

Keep containers closed.

SECTION 10 - REGULATORY INFORMATION

TSCA Inventory Status

Listed on Inventory: YES

RCRA Haz. Waste No.: NA

CERCLA: NO Reportable Qty.: (If YES)

State Regulatory Information: (By Component)

NJ/PA/MA RTK

| | | |
|-------|-----------------|-----|
| CAS: | 1304-28-5 | YES |
| NAME: | Barium Oxide | |
| CAS: | 1308-38-9 | YES |
| NAME: | Chromium Oxide | |
| CAS: | 1309-48-4 | YES |
| NAME: | Magnesium Oxide | |
| CAS: | 1313-59-3 | NO |
| NAME: | Sodium Oxide | |
| CAS: | 1314-13-2 | YES |
| NAME: | Zinc Oxide | |
| CAS: | 1317-38-0 | NO |
| NAME: | Copper Oxide | |
| CAS: | 1343-98-2 | NO |
| NAME: | Silica | |
| CAS: | 7732-18-5 | NO |
| NAME: | Water | |
| CAS: | 7782-42-5 | YES |
| NAME: | Graphite | |

Hazard Ratings:

| | Health: | Fire: | Reactivity: | Special: |
|------|---------|-------|-------------|----------|
| HMIS | 2* | 0 | 0 | NA |
| NFPA | 2 | 0 | 0 | NA |

This product is hazardous or contains components which are hazardous according to the OSHA Hazard Communication Standard.

THIS CATALYST CONTAINS THE FOLLOWING SARA 313 LISTED CHEMICAL

CATEGORIES: BARIUM OXIDE - 1%
CHROMIUM OXIDE - < 1%
ZINC OXIDE - < 1%
COPPER OXIDE - 35.7%

SECTION 11 - TRANSPORTATION INFORMATION

DOT Proper Shipping Name:

N/A

DOT Technical Name:

N/A

DOT Primary Hazard Class:

N/A

DOT Secondary Hazard Class:

N/A

SECTION 11 - TRANSPORTATION INFORMATION (cont)

DOT Label Required:

N/A

DOT Placard Required:

N/A

DOT Poison Constituent:

N/A

BASF Commodity Codes:

UN/NA Code: N/A

E/R Guide:

Bill of Lading Description:

NOT REGULATED BY THE DEPARTMENT OF TRANSPORTATION

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