



Safety Data Sheet

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SECTION 1: Identification

1.1. Product identifier

3M™ Abrasive Products, 3M™ Resin Bond Hotpressed Wheel 53HB BH5810

1.2. Recommended use and restrictions on use

Recommended use

Abrasive Product, For industrial/occupational use only. Not for consumer sale or use.

1.3. Supplier's details

MANUFACTURER: 3M
DIVISION: Abrasive Systems Division
ADDRESS: 3M Center, St. Paul, MN 55144-1000, USA
Telephone: 1-888-3M HELPS (1-888-364-3577)

1.4. Emergency telephone number

1-800-364-3577 or (651) 737-6501 (24 hours)

SECTION 2: Hazard identification

2.1. Hazard classification

Not classified as hazardous according to OSHA Hazard Communication Standard, 29 CFR 1910.1200.

2.2. Label elements

Signal word

Not applicable.

Symbols

Not applicable.

Pictograms

Not applicable.

9% of the mixture consists of ingredients of unknown acute oral toxicity.

SECTION 3: Composition/information on ingredients

| Ingredient | C.A.S. No. | % by Wt |
|----------------|------------|---------|
| Aluminum Oxide | 1344-28-1 | 30 - 60 |

| | | |
|------------------|------------|--------------------------|
| Fillers | Mixture | 10 - 25 |
| Zirconium Oxide | 1314-23-4 | 5 - 20 |
| Silicon Carbide | 409-21-2 | 2 - 14 |
| Cured Resin | Mixture | 2 - 10 |
| Calcium Oxide | 1305-78-8 | 1 - 4 Trade Secret * |
| Glass | Mixture | 1 - 4 |
| Titanium Dioxide | 13463-67-7 | 0.5 - 2 Trade Secret * |
| Quartz Silica | 14808-60-7 | 0.1 - 0.5 Trade Secret * |

*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:

Remove person to fresh air. If you feel unwell, get medical attention.

Skin Contact:

Wash with soap and water. If signs/symptoms develop, get medical attention.

Eye Contact:

Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.

If Swallowed:

Do not induce vomiting. Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

No critical symptoms or effects. See Section 11.1, information on toxicological effects.

4.3. Indication of any immediate medical attention and special treatment required

Not applicable

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.

5.2. Special hazards arising from the substance or mixture

Exposure to extreme heat can give rise to thermal decomposition.

Hazardous Decomposition or By-Products

Substance

Carbon monoxide
Carbon dioxide
Hydrogen Sulfide
Oxides of Sulfur
Oxides of Zinc

Condition

During Combustion
During Combustion
During Combustion
During Combustion
During Combustion

5.3. Special protective actions for fire-fighters

Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Evacuate area. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Use personal protective equipment based on the results of an exposure assessment. Refer to Section 8 for PPE recommendations. If anticipated exposure resulting from an accidental release exceeds the protective capabilities of the PPE listed in Section 8, or are unknown, select PPE that offers an appropriate level of protection. Consider the physical and chemical hazards of the material when doing so. Examples of PPE ensembles for emergency response could include wearing bunker gear for a release of flammable material; wearing chemical protective clothing if the spilled material is a corrosive, a sensitizer, a significant dermal irritant, or can be absorbed through the skin; or donning a positive pressure supplied-air respirator for chemicals with inhalation hazards. For information regarding physical and health hazards, refer to sections 2 and 11 of the SDS.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Not applicable.

SECTION 7: Handling and storage**7.1. Precautions for safe handling**

Do not breathe thermal decomposition products. For industrial/occupational use only. Not for consumer sale or use. Avoid breathing of dust created by sanding, grinding or machining. Damaged product can break apart during use and cause serious injury to face or eyes. Check product for damage such as cracks or nicks prior to use. Replace if damaged. Always wear eye and face protection when working at sanding or grinding operations or when near such operations. Avoid breathing dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Combustible dust may form by action of this product on another material (substrate). Dust generated from the substrate during use of this product may be explosive if in sufficient concentration with an ignition source. Dust deposits should not be allowed to accumulate on surfaces because of the potential for secondary explosions.

7.2. Conditions for safe storage including any incompatibilities

No special storage requirements.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****Occupational exposure limits**

If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

| Ingredient | C.A.S. No. | Agency | Limit type | Additional Comments |
|---|------------|--------|--|---------------------|
| Calcium Oxide | 1305-78-8 | ACGIH | TWA:2 mg/m ³ | |
| Calcium Oxide | 1305-78-8 | OSHA | TWA:5 mg/m ³ | |
| DUST, INERT OR NUISANCE | 1314-23-4 | OSHA | TWA(as total dust):50 millions of particles/cu. ft.(15 mg/m ³);TWA(respirable fraction):15 millions of particles/cu. ft.(5 mg/m ³) | |
| Particles (insoluble or poorly soluble) not otherwise specified, inhalable particles | 1314-23-4 | ACGIH | TWA(inhalable particulates):10 mg/m ³ | |
| Particles (insoluble or poorly soluble) not otherwise specified, respirable particles | 1314-23-4 | ACGIH | TWA(respirable particles):3 mg/m ³ | |

| | | | | |
|---|------------|-------|---|--------------------------------|
| ZIRCONIUM COMPOUNDS | 1314-23-4 | ACGIH | TWA(as Zr):5 mg/m3;STEL(as Zr):10 mg/m3 | A4: Not class. as human carcin |
| ZIRCONIUM COMPOUNDS | 1314-23-4 | OSHA | TWA(as Zr):5 mg/m3 | |
| Aluminum Oxide | 1344-28-1 | OSHA | TWA(as total dust):15 mg/m3;TWA(respirable fraction):5 mg/m3 | |
| Aluminum, insoluble compounds | 1344-28-1 | ACGIH | TWA(respirable fraction):1 mg/m3 | A4: Not class. as human carcin |
| Particles (insoluble or poorly soluble) not otherwise specified, inhalable particles | 1344-28-1 | ACGIH | TWA(inhalable particulates):10 mg/m3 | |
| Particles (insoluble or poorly soluble) not otherwise specified, respirable particles | 1344-28-1 | ACGIH | TWA(respirable particles):3 mg/m3 | |
| Titanium Dioxide | 13463-67-7 | ACGIH | TWA(Respirable nanoscale particles):0.2 mg/m3;TWA(Respirable finescale particles):2.5 mg/m3 | A3: Confirmed animal carcin. |
| Titanium Dioxide | 13463-67-7 | OSHA | TWA(as total dust):15 mg/m3 | |
| Quartz Silica | 14808-60-7 | ACGIH | TWA(respirable fraction):0.025 mg/m3 | A2: Suspected human carcin. |
| Quartz Silica | 14808-60-7 | OSHA | TWA Table Z-1(respirable):0.05 mg/m3;TWA Table Z-3(respirable):0.1 mg/m3;TWA concentration(respirable):0.1 mg/m3(2.4 millions of particles/cu. ft.) | |
| Particles (insoluble or poorly soluble) not otherwise specified, inhalable particles | 409-21-2 | ACGIH | TWA(inhalable particulates):10 mg/m3 | |
| Particles (insoluble or poorly soluble) not otherwise specified, respirable particles | 409-21-2 | ACGIH | TWA(respirable particles):3 mg/m3 | |
| Silicon Carbide | 409-21-2 | OSHA | TWA(as total dust):15 mg/m3;TWA(respirable fraction):5 mg/m3 | |
| Silicon carbide, nonfibrous, inhalable fraction | 409-21-2 | ACGIH | TWA(inhalable fraction):10 mg/m3 | |
| Silicon carbide, nonfibrous, respirable fraction | 409-21-2 | ACGIH | TWA(respirable fraction):3 mg/m3 | |

ACGIH : American Conference of Governmental Industrial Hygienists

AIHA : American Industrial Hygiene Association

CMRG : Chemical Manufacturer's Recommended Guidelines

OSHA : United States Department of Labor - Occupational Safety and Health Administration

TWA: Time-Weighted-Average

STEL: Short Term Exposure Limit

CEIL: Ceiling

8.2. Exposure controls

8.2.1. Engineering controls

For those situations where the material might be exposed to extreme overheating due to misuse or equipment failure, use with appropriate local exhaust ventilation sufficient to maintain levels of thermal decomposition products below their exposure guidelines. Provide appropriate local exhaust ventilation for sanding, grinding or machining. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control

dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment. Provide local exhaust at process emission sources to control exposure near the source and to prevent the escape of dust into the work area. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).

8.2.2. Personal protective equipment (PPE)

Eye/face protection

To minimize the risk of injury to face and eyes, always wear eye and face protection when working at sanding or grinding operations or when near such operations. Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:

Safety Glasses with side shields

Skin/hand protection

Wear appropriate gloves to minimize risk of injury to skin from contact with dust or physical abrasion from grinding or sanding.

Respiratory protection

Assess exposure concentrations of all materials involved in the work process. Consider material being abraded when determining the appropriate respiratory protection. Select and use appropriate respirators to prevent inhalation overexposure.

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:

For those situations where the material might be exposed to extreme overheating due to misuse or equipment failure, use a positive pressure supplied-air respirator.

Half facepiece or full facepiece air-purifying respirator suitable for particulates

For questions about suitability for a specific application, consult with your respirator manufacturer.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state

Solid

Color

Brown

Odor

Odorless

Odor threshold

Not Applicable

pH

Not Applicable

Melting point

Not Applicable

Boiling Point

Not Applicable

Flash Point

Not Applicable

Evaporation rate

Nil

Flammability (solid, gas)

Not Classified

Flammable Limits(LEL)

Not Applicable

Flammable Limits(UEL)

Not Applicable

Vapor Pressure

Negligible

Vapor Density

Negligible

Density

Not Applicable

Specific Gravity

Not Applicable

Solubility in Water

Nil

Solubility- non-water

Not Applicable

Partition coefficient: n-octanol/ water
Autoignition temperature
Decomposition temperature
Viscosity

Not Applicable
Not Applicable
Not Applicable
Not Applicable

SECTION 10: Stability and reactivity

10.1. Reactivity

This material is considered to be non reactive under normal use conditions.

10.2. Chemical stability

Stable.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

None known.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

| <u>Substance</u> | <u>Condition</u> |
|-------------------|--------------------------|
| Hydrogen Fluoride | At Elevated Temperatures |

Refer to section 5.2 for hazardous decomposition products during combustion.

Extreme heat arising from situations such as misuse or equipment failure can generate hydrogen fluoride as a decomposition product.

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation:

Dust from grinding, sanding or machining may cause irritation of the respiratory system. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Skin Contact:

Mechanical Skin irritation: Signs/symptoms may include abrasion, redness, pain, and itching.

Eye Contact:

Mechanical eye irritation: Signs/symptoms may include pain, redness, tearing and corneal abrasion.

Dust created by grinding, sanding, or machining may cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Ingestion:

No health effects are expected.

Carcinogenicity:

| Ingredient | CAS No. | Class Description | Regulation |
|---|------------|--------------------------------|---|
| Silica, Crystalline (Respirable Size) | 14808-60-7 | Known To Be Human Carcinogen. | National Toxicology Program Carcinogens |
| Silica dust, crystalline, in the form of quartz or cristobalite | 14808-60-7 | Grp. 1: Carcinogenic to humans | International Agency for Research on Cancer |
| Titanium dioxide | 13463-67-7 | Grp. 2B: Possible human carc. | International Agency for Research on Cancer |

Additional Information:

This document covers only the product. For complete assessment, when determining the degree of hazard, the material being abraded must also be considered. This product contains titanium dioxide and quartz (crystalline) silica. Cancer of the lungs has been associated with inhalation of high levels of titanium dioxide in animal studies, and occupational exposure to inhaled quartz silica has been associated with silicosis and lung cancer. No exposure to titanium dioxide or quartz silica is expected during the normal handling and use of this product. Titanium dioxide and quartz silica were not detected when air sampling was conducted during simulated use of similar products containing these substances. Therefore, the health effects associated with titanium dioxide and quartz (crystalline) silica are not expected during the normal use of this product.

Toxicological Data

If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

| Name | Route | Species | Value |
|------------------|--------------------------------|-------------------|--|
| Overall product | Ingestion | | No data available; calculated ATE >5,000 mg/kg |
| Aluminum Oxide | Dermal | | LD50 estimated to be > 5,000 mg/kg |
| Aluminum Oxide | Inhalation-Dust/Mist (4 hours) | Rat | LC50 > 2.3 mg/l |
| Aluminum Oxide | Ingestion | Rat | LD50 > 5,000 mg/kg |
| Zirconium Oxide | Dermal | | LD50 estimated to be > 5,000 mg/kg |
| Zirconium Oxide | Ingestion | Mouse | LD50 > 8,800 mg/kg |
| Zirconium Oxide | Inhalation-Dust/Mist (4 hours) | Rat | LC50 > 4.3 mg/l |
| Silicon Carbide | Dermal | Rat | LD50 > 2,000 mg/kg |
| Silicon Carbide | Ingestion | Rat | LD50 > 2,000 mg/kg |
| Calcium Oxide | Ingestion | Rat | LD50 > 2,500 mg/kg |
| Calcium Oxide | Dermal | similar compounds | LD50 > 2,500 mg/kg |
| Titanium Dioxide | Dermal | Rabbit | LD50 > 10,000 mg/kg |
| Titanium Dioxide | Inhalation-Dust/Mist (4 hours) | Rat | LC50 > 6.82 mg/l |
| Titanium Dioxide | Ingestion | Rat | LD50 > 10,000 mg/kg |
| Quartz Silica | Dermal | | LD50 estimated to be > 5,000 mg/kg |
| Quartz Silica | Ingestion | | LD50 estimated to be > 5,000 mg/kg |

ATE = acute toxicity estimate

Skin Corrosion/Irritation

| Name | Species | Value |
|----------------|---------|---------------------------|
| Aluminum Oxide | Rabbit | No significant irritation |

| | | |
|------------------|------------------------|---------------------------|
| Zirconium Oxide | Rabbit | No significant irritation |
| Silicon Carbide | Rat | No significant irritation |
| Calcium Oxide | Human | Corrosive |
| Titanium Dioxide | Rabbit | No significant irritation |
| Quartz Silica | Professional judgement | No significant irritation |

Serious Eye Damage/Irritation

| Name | Species | Value |
|------------------|------------------------|---------------------------|
| Aluminum Oxide | Rabbit | No significant irritation |
| Zirconium Oxide | Rabbit | Mild irritant |
| Silicon Carbide | Professional judgement | No significant irritation |
| Calcium Oxide | Rabbit | Corrosive |
| Titanium Dioxide | Rabbit | No significant irritation |

Skin Sensitization

| Name | Species | Value |
|------------------|------------------|----------------|
| Titanium Dioxide | Human and animal | Not classified |

Respiratory Sensitization

For the component/components, either no data are currently available or the data are not sufficient for classification.

Germ Cell Mutagenicity

| Name | Route | Value |
|------------------|----------|--|
| Aluminum Oxide | In Vitro | Not mutagenic |
| Silicon Carbide | In Vitro | Not mutagenic |
| Calcium Oxide | In Vitro | Not mutagenic |
| Titanium Dioxide | In Vitro | Not mutagenic |
| Titanium Dioxide | In vivo | Not mutagenic |
| Quartz Silica | In Vitro | Some positive data exist, but the data are not sufficient for classification |
| Quartz Silica | In vivo | Some positive data exist, but the data are not sufficient for classification |

Carcinogenicity

| Name | Route | Species | Value |
|------------------|------------|-------------------------|------------------|
| Aluminum Oxide | Inhalation | Rat | Not carcinogenic |
| Titanium Dioxide | Ingestion | Multiple animal species | Not carcinogenic |
| Titanium Dioxide | Inhalation | Rat | Carcinogenic |
| Quartz Silica | Inhalation | Human and animal | Carcinogenic |

Reproductive Toxicity

Reproductive and/or Developmental Effects

For the component/components, either no data are currently available or the data are not sufficient for classification.

Target Organ(s)

Specific Target Organ Toxicity - single exposure

| Name | Route | Target Organ(s) | Value | Species | Test Result | Exposure Duration |
|---------------|------------|------------------------|----------------------------------|---------------|---------------------|-----------------------|
| Calcium Oxide | Inhalation | respiratory irritation | May cause respiratory irritation | Not available | NOAEL Not available | occupational exposure |

Specific Target Organ Toxicity - repeated exposure

| Name | Route | Target Organ(s) | Value | Species | Test Result | Exposure Duration |
|------------------|------------|--------------------|--|---------|---------------------|-----------------------|
| Aluminum Oxide | Inhalation | pneumoconiosis | Some positive data exist, but the data are not sufficient for classification | Human | NOAEL Not available | occupational exposure |
| Aluminum Oxide | Inhalation | pulmonary fibrosis | Not classified | Human | NOAEL Not available | occupational exposure |
| Titanium Dioxide | Inhalation | respiratory system | Some positive data exist, but the data are not sufficient for classification | Rat | LOAEL 0.01 mg/l | 2 years |
| Titanium Dioxide | Inhalation | pulmonary fibrosis | Not classified | Human | NOAEL Not available | occupational exposure |
| Quartz Silica | Inhalation | silicosis | Causes damage to organs through prolonged or repeated exposure | Human | NOAEL Not available | occupational exposure |

Aspiration Hazard

For the component/components, either no data are currently available or the data are not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information**Ecotoxicological information**

Please contact the address or phone number listed on the first page of the SDS for additional ecotoxicological information on this material and/or its components.

Chemical fate information

Please contact the address or phone number listed on the first page of the SDS for additional chemical fate information on this material and/or its components.

SECTION 13: Disposal considerations**13.1. Disposal methods**

Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Prior to disposal, consult all applicable authorities and regulations to insure proper classification. The substrate that was abraded must be considered as a factor in the disposal method for this product. Dispose of waste product in a permitted industrial waste facility. As a disposal alternative, incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Combustion products will include HF. Facility must be capable of handling halogenated materials. If no other disposal options are available, waste product may be placed in a landfill properly designed for industrial waste.

SECTION 14: Transport Information

For Transport Information, please visit <http://3M.com/Transportinfo> or call 1-800-364-3577 or 651-737-6501.

SECTION 15: Regulatory information

15.1. US Federal Regulations

Contact 3M for more information.

EPCRA 311/312 Hazard Classifications:**Physical Hazards**

Not applicable

Health Hazards

Not applicable

Section 313 Toxic Chemicals subject to the reporting requirements of that section and 40 CFR part 372 (EPCRA):

| <u>Ingredient</u> | <u>C.A.S. No</u> | <u>% by Wt</u> |
|-------------------|------------------|----------------|
| Aluminum Oxide | 1344-28-1 | 30 - 60 |

15.2. State Regulations

Contact 3M for more information.

15.3. Chemical Inventories

This product is an article as defined by TSCA regulations, and is exempt from TSCA Inventory listing requirements.

Contact 3M for more information.

15.4. International Regulations

Contact 3M for more information.

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: Other information**NFPA Hazard Classification**

Health: 3 Flammability: 1 Instability: 0 Special Hazards: None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

The NFPA Health code of 3 is due to emergency situations where the material may thermally decompose and release Hydrogen Fluoride. During normal use conditions, please reference Section 2 and Section 11 of the SDS for additional health hazard information.

| | | | |
|------------------------|-----------|-------------------------|----------|
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