



A Milacron Company

Dear Customer:

Enclosed is the **REVISED** Material Safety Data Sheet for our product:

D-M-E ABRASIVE STONES – GENERAL PURPOSE, TYPE F

The products we distribute are not normally hazardous in their natural state. However, steel does contain elements deemed by OSHA to be hazardous when released by manufacturing, such as brazing, burning, grinding, sawing or welding, etc. Failure to control dust and fumes can result in chronic health problems.

We believe the information, supplied by the Manufacturer, on the enclosed MSDS to be accurate; however, D-M-E makes no warranty with respect to the accuracy of the information or the suitability of the recommendations, and assumes no liability for the information so presented.

Should you require additional information, please call or write the Manufacturer listed on the MSDS.

Sincerely yours,

D-M-E Company
Director of Operations
Ken Jasina

Revised: November 2010



MATERIAL SAFETY DATA SHEET

MSDS #: 394

Date of Issue: 1/91

Date of Revision: 11/10

SECTION 1 -- PRODUCT IDENTIFICATION

IDENTITY (Trade Name): Vitrified Aluminum Oxide abrasive

SYNONYMS: Abrasive stone, bonded Alumina, dressing stick, glass stone, mold stone, polishing stone, roughout stone, or mounted point.

FAMILY/CHEMICAL NAME: Oxide, Glass

PRODUCT USE: Mold and die polishing, grinding, tool sharpening, dressing of grinding and cutting wheels. Vitrified aluminum oxide abrasives break down during use. The resulting dust is classified by OSHA as inert or nuisance dust. Data provided pertains primarily to the dust produced during and after use. **IMPORTANT:** Hazards may change when this product is used in conjunction with solvents, cutting fluids or other chemicals. For more complete information, consult the material safety data sheets of chemical products used with vitrified aluminum oxide abrasives.

MANUFACTURER/SUPPLIER: BORIDE Engineered Abrasives
2615 Aero Park Dr.
Traverse City MI 49686-9101

ORIGINAL ISSUE DATE: January 1991

TELEPHONE NUMBER: (800) 662-0336

24-HOUR EMERGENCY NUMBER: (231) 922-1959

SECTION 2 -- INGREDIENTS

| MATERIAL | CAS # | WEIGHT % | TLV | Hazardous Ingredient (YES/NO) |
|----------------|------------|----------|----------------------|-------------------------------|
| Aluminum Oxide | 1344-28-1 | 60-95% | 10 mg/m ³ | no |
| Frit/clay bond | 65997-18-4 | 5-30% | 10 mg/m ³ | no |

AND MAY CONTAIN ONE OF THE FOLLOWING MATERIALS:

| | | | | |
|---------------|------------|--------|----------------------|------|
| Cured resin | 9003-35-4 | 10-30% | 10 mg/m ³ | no |
| Petroleum oil | 64742-54-7 | 5-25% | 10 mg/m ³ | no |
| Sulfur | 7704-34-9 | 10-30% | 10 mg/m ³ | yes* |
| Wax | NA | 10-30% | 10 mg/m ³ | no |

* Regulated material in Connecticut, Florida, New Jersey, Pennsylvania and Rhode Island. Vitrified aluminum oxide abrasives are ceramic articles that may be further treated with cured resin, oil, sulfur or wax. End use of vitrified aluminum oxide abrasives (grinding, polishing, etc.) may produce dust which is classified as inert or nuisance dust. OSHA sets TLV (threshold limit value) for nuisance dust at 10 mg/m³ for continuous exposure.

**MATERIAL SAFETY DATA SHEET**

MSDS #: 394

Date of Revision: 11/10

SECTION 3 -- PHYSICAL DATA

PHYSICAL STATE, APPEARANCE, and ODOR: Solid; red, pink, brown, orange, blue, gray or white. Slight paraffin odor for oil and wax treat product, otherwise no odor.

ODOR THRESHOLD: Not applicable.

DENSITY: Varies; 1.80 to 2.70

VAPOR DENSITY: Not applicable.

BOILING POINT: Not applicable.

VAPOR PRESSURE: Not applicable.

FREEZING POINT: Not applicable.

EVAPORATION RATE: Not applicable.

PH: Not applicable.

SOLUBILITY IN WATER: Not applicable.

MOLECULAR WEIGHT: Not applicable.

VOLATILE ORGANIC COMPOUNDS: No.

SECTION 4 -- HEALTH HAZARD DATA

PRIMARY ROUTES OF EXPOSURE: During or after use, the dust resulting from breakdown of vitrified aluminum oxide may be inhaled or come in contact with skin or eyes.

EXPOSURE LIMITS: Particulate not otherwise classified, use TLV of 10mg/m³ for vitrified aluminum oxide products.

SIGNS AND SYMPTOMS OF EXPOSURE

ACUTE: Eyes: Dust can cause irritation, redness and eye watering.

Skin: No skin absorption hazard for vitrified aluminum oxide products. May cause rash from mechanical irritation.

Inhalation (Breathing): Nuisance dust may cause coughing or sneezing.

Ingestion (Swallowing): Abrasive particles may cause irritation.

CHRONIC: Same as Acute.

MEDICAL CONDITION AGGRAVATED BY EXPOSURE: Nuisance dust may aggravate pre-existing conditions.
CARCINOGENICITY: None.



BORIDE
Engineered Abrasives
MATERIAL SAFETY DATA SHEET

MSDS #: 394

Date of Revision: 11/10

SECTION 4 -- HEALTH HAZARD DATA (cont'd)**EMERGENCY FIRST AID PROCEDURES**

- EYES:** Flush eyes with water for 15 minutes lifting upper and lower lids occasionally. Seek medical attention if irritation or pain persists.
- SKIN:** Thoroughly wash affected area with soap and water and isolate from exposure. If irritation or rash persists, seek medical attention.
- INHALATION:** If symptoms of pulmonary involvement develop (coughing, sneezing, shortness of breath) remove from exposure. If condition persists seek medical attention.
- OTHER HEALTH RISKS:** Grinding may create sound and vibration levels that could effect hearing and aggravate circulatory problems in the hands. Obtain medical evaluation and use proper protection.

SECTION 5 -- FIRE AND EXPLOSION HAZARD DATA**EMERGENCY RESPONSE GUIDE NUMBER:** Not Applicable.

FLASH POINT: Not applicable for untreated aluminum oxide abrasives.
Sulfur: 405°F
Oil: 400°F min. Wax: 570°F min. Resin: not available.

FLAMMABLE LIMITS IN AIR: Not Known.

AUTOIGNITION TEMPERATURE: Not applicable for untreated aluminum oxide abrasives.
Sulfur: 478 to 511°F
Oil: N/A Wax: N/A Resin: N/A.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None for untreated aluminum oxide abrasives.
Sulfur: Thermal decomposition products are hazardous and include sulfur dioxide.
Oil: None. Wax: None. Resin: None.

FIRE FIGHTING PROCEDURES: Not applicable for untreated aluminum oxide abrasives.
Sulfur: Burning sulfur produces highly toxic fumes. Provide for the protection of everyone in the proximity of the fire. 1) Evacuate anyone who may be exposed to the smoke. 2) Prevent unauthorized entry into the fire area. 3) Persons exposed to smoke should be examined by a physician. 4) Cool surrounding areas with water fog to prevent re-ignition. Fires will rekindle until cooled below 310°F. 5) Dike area or take measures to prevent runoff and contamination of water sources. Firemen should wear protective clothing and use self-contained breathing apparatus.
Oil & Wax: Oil and wax are surface burning materials. If water is used, apply using spray or fog nozzle.
Cured resin: In fire conditions, do not inhale gases. Wear positive pressure self-contained breathing apparatus.



BORIDE
Engineered Abrasives

MATERIAL SAFETY DATA SHEET

MSDS #: 394

Date of Revision: 11/10

SECTION 5 – FIRE AND EXPLOSION HAZARD DATA (cont'd)

EXTINGUISHING MEDIA: Not applicable for untreated aluminum oxide abrasives.
Sulfur: Use water fog. Do not use solid streams of water.
Oil, Wax & Resin: Use water spray or fog, foam, dry chemical or CO₂.

HAZARDOUS COMBUSTION PRODUCTS: Not applicable for untreated aluminum oxide abrasives.
Sulfur: Sulfur dioxide.
Oil, Wax & Resin: Complete combustion will produce carbon dioxide and carbon monoxide.

SECTION 6 – REACTIVITY DATA

STABILITY: Stable, not reactive with water for vitrified bonded aluminum oxide abrasives. Sulfur, oil, wax & resin: Stable at ambient temperatures and atmospheric pressure.

INCOMPATIBILITY (material & conditions to avoid): Not Applicable for untreated aluminum oxide abrasives.
Sulfur: Keep away from open flames and other ignition sources.
Oil, wax and resin: Keep away from open flames and other ignition sources

HAZARDOUS POLYMERIZATION: Not Applicable for untreated aluminum oxide abrasives.
Sulfur, oil, wax & resin: will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS: Not Applicable for untreated aluminum oxide abrasives.
Sulfur: Sulfur dioxide is produced in a fire.
Oil, wax and resin: Not available.

SECTION 7 -- PREVENTIVE MEASURES**PRECAUTIONS FOR SAFE USE AND HANDLING**

HANDLING PRECAUTION: If use conditions generate airborne dust, use in well-ventilated area and avoid breathing dust. Dust should be removed by washing or vacuuming. See ANSI Standard B7.1 safety requirements for the use of abrasive grinding wheels.

PERSONAL HYGIENE: Use good personal hygiene. Wash hands before eating, drinking or smoking. Do not shake clothing, rags or other items to remove dust.

SHIPPING & STORING PRECAUTIONS: Not Applicable for untreated aluminum oxide abrasives.
Sulfur: Keep away from open flames and other ignition sources.
Oil, wax and resin: Keep away from open flames and other ignition sources.

SPILL PROCEDURES: Sweep or shovel vitrified aluminum oxide into closable container for disposal. Use a vacuum or wet clean-up for dust.

WASTE DISPOSAL METHODS: Dispose in accordance with federal, state, provincial and local regulations.



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SECTION 7 -- PREVENTIVE MEASURES (cont'd)**CONTROL MEASURES**

EYE PROTECTION: Goggles or safety glasses with side shields are recommended when vitrified aluminum oxide products are used in polishing, grinding or cutting operations.

PROTECTIVE GLOVES: Recommended but not required for vitrified aluminum oxide products.

RESPIRATORY PROTECTION: Not normally required for vitrified aluminum oxide products. Selection and use of respiratory protective equipment, if warranted, should be in accordance with OSHA General Industry Standard 29 CFR 1910.134 in the U.S.A. and with CSA Standard Z94.4-M1982 in Canada.

ENGINEERING CONTROLS: Provide process enclosure or local ventilation needed to maintain dust below applicable exposure limits.

OTHER PROTECTIVE EQUIPMENT: Hearing protection may be required. See OSHA 29CFR 1910.95 for noise level statutory limits and hearing protection requirements.

SECTION 8 -- OTHER REGULATORY INFORMATION**TRANSPORTATION INFORMATION**

DOT PROPER SHIPPING NAME: None for untreated aluminum oxide.

Sulfur: Sulfur, solid (Ceramic Product, sulfur treated)
None for oil, wax or resin treated aluminum oxide.

DOT HAZARD CLASS: None for untreated aluminum oxide.

Sulfur: ORM-C

None for oil, wax or resin treated aluminum oxide.

DOT ID NUMBER: None for untreated aluminum oxide.

Sulfur: UN1350

None for oil, wax or resin treated aluminum oxide.

SARA TITLE III: Product does not contain toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCE LIST: Not listed

SECTION 313 TOXIC CHEMICALS LIST: Not listed

FEDERAL RCRA HAZARDOUS WASTE: Not listed

REPORTABLE QUANTITY (RQ), UNDER U.S.: Not listed

User assumes all risks incident to the use of this product. To the best of our knowledge, the information contained herein is accurate. However, BORIDE Engineered Abrasives assumes no liability whatsoever for the accuracy or completeness of the information contained herein. No representations or warranties, either expressed or implied, or merchantability, fitness for a particular purpose or of any other nature are made hereunder with respect to information or the product to which information refers. The data contained on this sheet apply to the material as supplied to the user.