



MATERIAL SAFETY DATA SHEET

According to ISO 11014-1

MSDS NA/17-AF/587

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SECTION 01 – PRODUCT AND COMPANY IDENTIFICATION

IDENTITY: Brake Lining – **NA/17- AF/587**

Chemical Family Name: Non Asbestos Friction Material

Use for the product: In brake application

Manufacturer’s Name: FRAS-LE S.A

Address: RS 122 – Km 66,1 – nº 10945 – Bairro Forqueta – Caxias do Sul – 95010.550 – RS – Brasil

Telephone Number for Information: (54) 209-1955 - Fax (54) 209-2021.

SECTION 02 – INGREDIENTS AND HAZARDOUS

| Hazardous Components | ACGIH –TLV/ NOHSC - TWA * |
|-----------------------------|----------------------------------|
| Inorganic Fiber | 1 f/cm ³ |
| Metallic Fiber | NA |
| Organic Fiber | 10 mg/m ³ |
| Coke, Graphite | 2 mg/m ³ |
| Phenolic Modified Resin | 5 ppm |
| Metallic Oxides | 5 mg/m ³ |
| Non Fibrous Silicate Filler | 3 mg/m ³ |
| Other Fillers | 5 mg/m ³ |

Note: This is an asbestos free product.

SECTION 03 – HAZARDS IDENTIFICATION

Route(s) of Entry: Inhalation: yes Skin: yes Ingestion: no

Health Hazards (Acute and Chronic):

Some persons may be sensitive to phenolic resins and develop dermatitis-type problems. Overexposure of dust of silica, graphite, and coke can produce pneumoconiosis and lung damage.

SECTION 04 – FIRST-AID MEASURES

Emergency and First Aid Procedures:

Should not be necessary from reasonable handling of this product.

SECTION 05 – FIRE-FIGHTING MEASURES

Flash Point : NA

Flammable Limits : NA

Extinguishing Media: water fog, CO2 foam as appropriate for surrounding materials.

Special Fire Fighting Producers :

Positive pressure self-contained breathing apparatus should be used. Personnel not having suitable respiratory protection should leave the area to prevent significant exposure to toxic combustion gases from any source.

SECTION 06 – ACCIDENTAL RELEASE MEASURES

Spill and leak procedures : NA

SECTION 07 – HANDLING AND STORAGE

Precautions to be taken in handling and storage:

Sparks may be produced under some grinding conditions. Grinding, drilling, milling, can result in the release of airborne dust. Use vacuum to avoid dust dispersal.

Storage in dry place.

SECTION 08 – EXPOSURE CONTROLS/ PERSONAL PROTECTION

| | |
|--|--|
| Respiratory protection | Appropriate mask for persons |
| Ventilation | Local exhaust for dust exposures exceeding TLV Mechanical: not recommended for dust exposures |
| Protective gloves | Recommended for persons with skin sensitive to phenolic resins. Other: barrier creams for persons with skin sensitive to phenolic resins and glass fiber. |
| Eye protection | Should not be needed for normal handling of product. Eye protection is a good practice where dust is propelled by grinding or drilling activities. |
| Other protective clothing or Equipment | Long sleeve shirts or other protective clothing may be beneficial to prevent skin contact of person sensitive to phenolic resins and glass fiber. |

SECTION 09 – PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---------------------|------------------------------------|
| Boiling Point | NA |
| Vapor Pressure | NA |
| Vapor Density | NA |
| Solubility in Water | None |
| Melting Point | NA |
| Evaporation Rate | 0 |
| Specific Gravity | 2,00 – 2,10 g/cm ³ |
| Appearance and Odor | Grey color and characteristic odor |
| Physical State | Solid |

SECTION 10 – STABILITY AND REACTIVITY

| | |
|---|--------------------------|
| Stability: Stable | Conditions to avoid : NK |
| Incompatibility (material to avoid): NK | |
| Hazards polymerization: will not occur | Condition to avoid : NK |
| Hazardous Decomposition Products: incomplete combustion will create carbon monoxide and dioxide | |

SECTION 13 – DISPOSAL CONSIDERATION

Waste Disposal:

Scrap pieces should be disposed of in a way to prevent airborne dust.

Wastes should be placed in sealed container marked with appropriate warning label.

Check local, state and federal regulations.

SECTION 14 – TRANSPORT INFORMATION

Shipping name: Non – regulated material according to 49 CFR 172. 101 part 171

Hazard Class: Not sublet to DOT Hazardous Material Registry.

SECTION 16 – OTHER INFORMATION

Maintain good housekeeping practices.

Employees should be properly instructed of control measures as indicated above when there is a need for it.

The amount of dust produced should be controled, being necessary the use of vacuum cleaning.

* **This product is Non- Hazardous according to health and safety standards, as follows :**

ACGIH TLV-TWA - American Conference of Governmental Industrial Hygienists - 2000 Edition

NOHSC - TWA – National Occupational Health and Safety Commission

NA – Not Available

NK – Not Known

Prepared: Raw material Quality Analyst Approved: Research and Development Manager