



SAFETY DATA SHEET

1	IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING
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Product name: FERODO 3334F

Product No.: 3334F (Y1654)

Supplier:

Federal Mogul Friction Products Limited (Manufacturer)
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Intended use: Friction material

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2	HAZARDS IDENTIFICATION
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The product has been classified according to the legislation in force. Dust can be created by the machining of finished products.

Classification: | R42/43 | Xi; R36 | R52/53 |

The full text for all R-phrases is displayed in Section 16.

Potential health effects

Inhalation: High concentrations of dust may irritate throat and respiratory system and cause coughing. May cause sensitization by inhalation.

Eye contact: Irritating to eyes.

Skin contact: The ingredients may be released from the product by operations such as overheating, burning, machining, abrading, or riveting. May cause sensitization by skin contact.

Ingestion: May cause discomfort if swallowed.

Other health effects: No specific acute or chronic health impact noted, but this chemical may still have adverse impact on human health, either in general or on certain individuals with pre-existing or latent health problems.

Potential physical / chemical effects: The product is non-combustible.

Environment: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3 COMPOSITION/INFORMATION ON INGREDIENTS

General information: This product contains a variety of ingredients all of which have become part of a bound system both physically and chemically and do not necessarily exhibit the properties of the individual components. The ingredients may be released from the product by operations such as overheating, burning, machining, abrading, or riveting.

Chemical name	EC No.	CAS-No.	Concentration *	Classification	Notes
Barium sulphate	231-784-4	7727-43-7	15 - 30%	-	-
Mullite	215-113-2	1302-93-8	7 - 15%	-	-
Iron oxide	215-277-5	1317-61-9	7 - 15%	-	-
Cashew, nutshell liq.	232-355-4	8007-24-7	3 - 7%	Xi;R38, Xi;R41, Xi;R43	-
Carbon	231-153-3	7440-44-0	1 - 5%	-	-
Calcium Stearate	216-472-8	1592-23-0	1 - 5%	-	-
Sulphur	231-722-6	7704-34-9	1 - 5%	F;R11	-
Zinc oxide	1314-13-2	1314-13-2	1 - 5%	N;R50/53	-
Hexamine	202-905-8	100-97-0	1 - 5%	F;R11, Xn;R42, Xi;R43	-

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

The full text for all R-phrases is displayed in Section 16.

4 FIRST-AID MEASURES

Inhalation: Move injured person into fresh air and keep person calm under observation. If necessary, seek hospital and take along these instructions.

Eye contact: Flush thoroughly with water for at least 15 minutes. Dust in the eyes: Make sure to remove any contact lenses from the eyes before rinsing. Get medical attention if irritation persists after washing.

Skin contact: Wash contact areas with soap and water. Get medical attention promptly if symptoms occur after washing.

Ingestion: If swallowed, rinse mouth with water (only if the person is conscious). Get medical attention if any discomfort continues.

Note to physician: Get medical attention if symptoms occur.

5 FIRE-FIGHTING MEASURES

Extinguishing media: This product is not flammable. Use fire-extinguishing media appropriate for surrounding materials.

Inappropriate extinguishing media: None.

Special fire fighting procedures: Use standard firefighting procedures and consider the hazards of other involved materials.

Unusual fire & explosion hazards: The product is non-combustible. If heated, toxic vapours may be formed.

Hazardous combustion products: Ammonia, Calcium oxides, Carbon oxides, Metal oxides, Metallic fumes, Sulfur oxides, Zinc oxides

Protective measures: Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions: Avoid dust formation. Avoid inhalation of dust and contact with skin and eyes. Wear necessary protective equipment. See Section 8 for personal protective equipment.

Spill cleanup methods: Collect powder using special dust vacuum cleaner with particle filter or carefully sweep into closed container.

Environmental precautions: Avoid discharge into water courses or onto the ground. Collect and dispose of spillage as indicated in section 13.

Notification procedures: In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

7 HANDLING AND STORAGE

Handling: Provide adequate ventilation. Avoid dust formation. Avoid inhalation of dust and contact with skin and eyes. Use work methods which minimise dust production. Observe good industrial hygiene practices.

Storage: Store in tightly closed original container. Avoid conditions which create dust. Protect against direct sunlight. Store away from incompatible materials.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit values:

Chemical name	Source	Type	Workplace exposure limits	Notes
Barium sulphate (Inhalable dust.)	EH40/2005	TWA	10 mg/m ³	
Barium sulphate (Respirable dust.)	EH40/2005	TWA	4 mg/m ³	
Carbon (Inhalable dust.)	EH40/2005	TWA	10 mg/m ³	General dust
Carbon (Respirable dust.)	EH40/2005	TWA	4 mg/m ³	General dust

Engineering controls: Provide adequate ventilation. Observe occupational exposure limits and minimise the risk of inhalation of dust.

Respiratory protection: During dust-raising work: Use respiratory equipment with particle filter, type P1. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye protection: Wear approved safety goggles.

Hand protection: Gloves are recommended for prolonged use. Suitable gloves can be recommended by the glove supplier.

Skin protection: Wear suitable protective clothing.

Hygiene measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Environmental exposure controls: Environmental manager must be informed of all major spillages.

9**PHYSICAL AND CHEMICAL PROPERTIES**

Physical state: Solid
Colour: Dark grey
Odour: Characteristic
Odour threshold: No data available.
pH: No data available
Melting point: No data available.
Freezing point: Not applicable
Boiling Point: No data available.
Relative density: 2.1
Vapour pressure: No data available.
Vapour density (air=1): No data available.
Evaporation rate: No data available.
Solubility in water: Insoluble
Solubility (other): No data available.
Partition coefficient (n-octanol/water): No data available.
Viscosity: Not applicable
Flash point: No data available.
Autoignition temperature: No data available.
Flammability limit - lower(%): No data available.
Flammability limit - upper (%): No data available.

10**STABILITY AND REACTIVITY**

Stability: Material is stable under normal conditions.

Conditions to avoid: Heat.

Incompatible materials: Strong oxidising agents.

Hazardous decomposition products:

At elevated temperatures:	Ammonia, Formaldehyde, Metallic fumes, Sulfur oxides, Zinc oxides
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Possibility of hazardous reactions: Will not occur.

11**TOXICOLOGICAL INFORMATION****Specified substance(s)****Acute toxicity:**

Chemical name	Test results
Sulphur	Oral LD50 (Rat): > 5050 mg/kg

Sulphur	Dermal LD50 (Rat): > 2020 mg/kg
Zinc oxide	Oral LD50 (Rat): 8437 mg/kg
Calcium Stearate	Oral LD50 (Rat): >10000 mg/kg

Inhalation: High concentrations of dust may irritate throat and respiratory system and cause coughing.

Eye contact: Irritating to eyes. Exposed may experience eye tearing, redness, and discomfort.

Skin contact: Mildly irritating to skin with prolonged exposure.

Ingestion: May cause discomfort if swallowed.

Sensitisation: May cause sensitization by inhalation. May cause sensitization by skin contact.

Carcinogenicity: None.

Listed carcinogens:

Chemical name	IARC	NTP	OSHA	ACGIH
Calcium Stearate	Not listed	Not listed	Not listed	A4

IARC: 1 = Carcinogenic to Humans; 2A = Probably Carcinogenic to Humans; 2B = Possibly Carcinogenic to Humans; 3 = Not classifiable as to carcinogenicity to humans; 4 = Probably not carcinogenic to humans; Not listed = Not evaluated by IARC.

ACGIH: A1 = Confirmed Human Carcinogen; A2 = Suspected Human Carcinogen; A3 = Confirmed Animal Carcinogen; A4 = Not classifiable as a human carcinogen; A5 = Not suspected to be a human carcinogen; Not listed = Not evaluated by ACGIH.

Mutagenesis: No data available.

Reproductive toxicity: No data available.

Other effects: No specific acute or chronic health impact noted, but this chemical may still have adverse impact on human health, either in general or on certain individuals with pre-existing or latent health problems.

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ECOLOGICAL INFORMATION

Ecotoxicity: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Specified substance(s)

Chemical name	Test
Hexamine	LC50 (48 hour(s), Daphnia): 36000 mg/l
Hexamine	LC50 (96 hour(s), Fathead minnow): 49800 mg/l

Mobility: The product is insoluble in water and will sediment in water systems.

Persistence and degradability: The product contains inorganic compounds which are not biodegradable.

Bioaccumulation potential: No data available.

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DISPOSAL CONSIDERATIONS

General information: Dispose of waste and residues in accordance with local authority requirements.

Disposal methods: Disposal recommendations are based on material as supplied. Disposal must be in accordance

with current applicable laws and regulations, and material characteristics at time of disposal.

European waste codes

Unused product: 16 03 03*

Container: 15 01 02

14**TRANSPORT INFORMATION**

ADR/RID Not regulated.

IMDG Not regulated.

IATA Not regulated.

15**REGULATORY INFORMATION**

Contains: Hexamine



Harmful.

R36; Irritating to eyes. R42/43; May cause sensitization by inhalation and skin contact.
R52/53; Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S22; Do not breathe dust. S24; Avoid contact with skin. S36/37/39; Wear suitable protective clothing, gloves and eye/face protection. S60; This material and its container must be disposed of as hazardous waste. S61; Avoid release to the environment. Refer to special instructions/safety data sheets.

16**OTHER INFORMATION**

Wording of the R-phrases in sections 2 and 3: R11; Highly flammable. R36; Irritating to eyes. R38; Irritating to skin. R41; Risk of serious damage to eyes. R42; May cause sensitization by inhalation. R43; May cause sensitization by skin contact. R48/22; Harmful: danger of serious damage to health by prolonged exposure if swallowed. R50/53; Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R52/53; Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Inventory status: All ingredients are either listed or exempt from listing on EINECS/ELINCS.

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Supercedes date:

SDS No.: 3E-Y1654

Disclaimer: The information provided on this data sheet was abstracted from supplier safety data sheets and standard references in occupational health and toxicology. Federal-Mogul makes no representation or warranty with respect to the information obtained from such references. The information is however, as of the date provided, true and accurate to the best of Federal-Mogul's knowledge, and should be used to make an independent determination of the methods to safeguard workers and the environment.