

1. Identification

| | | | |
|--|---|----------------|--|
| Product identifier | BOF 712 | | |
| Other means of identification | | | |
| Brand Code | 8824 | | |
| Recommended use | For Industrial Use Only | | |
| Recommended restrictions | None known. | | |
| Manufacturer/Supplier information | | | |
| Manufacturer | | | |
| Company name | HarbisonWalker International | | |
| Address | 1305 Cherrington Parkway, Suite 100 Moon Township, Pennsylvania 15108 US | | |
| Telephone | General Phone: | 412-375-6600 | |
| Website | www.thinkHWI.com | | |
| Emergency phone number | CHEMTREC 24 HOUR EMERGENCY # | 1-800-424-9300 | |

2. Hazard(s) identification

Classified hazards

This item is defined as an article per OSHA (29 CFR 1910.1200) and is therefore exempt from labeling. A Safety Data Sheet is available.

This item is not hazardous per OSHA 29 CFR 1910.1200(c). However, individual customer processes (such as grinding, sawing, or blasting) may result in the formation of dust that may present health hazards. May cause respiratory irritation, lung injury, or cancer by inhalation. Limit skin contact. Wash hands after handling. Dispose of waste and residues in accordance with local authority requirements. Wear protective gloves/protective clothing/eye protection. Dust may cause cancer.

Label elements

This item is defined as an article per OSHA (29 CFR 1910.1200) and is therefore exempt from labeling. A Safety Data Sheet is available.

This item is not hazardous per OSHA 29 CFR 1910.1200(c). However, individual customer processes (such as grinding, sawing, or blasting) may result in the formation of dust that may present health hazards. May cause respiratory irritation, lung injury, or cancer by inhalation. Limit skin contact. Wash hands after handling. Dispose of waste and residues in accordance with local authority requirements. Wear protective gloves/protective clothing/eye protection. Dust may cause cancer.

Hazard(s) not otherwise classified (HNOC)

This item is defined as an article per OSHA (29 CFR 1910.1200) and is therefore exempt from labeling. A Safety Data Sheet is available.

This item is not hazardous per OSHA 29 CFR 1910.1200(c). However, individual customer processes (such as grinding, sawing, or blasting) may result in the formation of dust that may present health hazards. May cause respiratory irritation, lung injury, or cancer by inhalation. Limit skin contact. Wash hands after handling. Dispose of waste and residues in accordance with local authority requirements. Wear protective gloves/protective clothing/eye protection. Dust may cause cancer.

3. Composition/information on ingredients

Mixtures

| Chemical name | Common name and synonyms | CAS number | % |
|-------------------------------|--------------------------|------------|---------|
| Magnesium Oxide | | 1309-48-4 | 60 - 80 |
| Graphite | | 7782-42-5 | 10 - 20 |
| Aluminium | | 7429-90-5 | 1 - 2.5 |
| Aluminium Oxide (Non-Fibrous) | | 1344-28-1 | 0.1 - 1 |
| Phenol | | 108-95-2 | 0.1 - 1 |
| Ethane-1,2-diol | | 107-21-1 | 0 - 0.1 |
| Formaldehyde | | 50-00-0 | 0 - 0.1 |

4. First-aid measures

| | |
|--|----------------|
| Inhalation | Not available. |
| Skin contact | Not available. |
| Eye contact | Not available. |
| Ingestion | Not available. |
| Most important symptoms/effects, acute and delayed | Not available. |

5. Fire-fighting measures

| | |
|---|---|
| Suitable extinguishing media | Use fire-extinguishing media appropriate for surrounding materials. |
| Unsuitable extinguishing media | Not available. |
| Specific hazards arising from the chemical | Not applicable. |
| Special protective equipment and precautions for firefighters | Not available. |

6. Accidental release measures

| | |
|---|----------------|
| Personal precautions, protective equipment and emergency procedures | Not available. |
| Methods and materials for containment and cleaning up | Not available. |

7. Handling and storage

| | |
|--|----------------|
| Precautions for safe handling | Not available. |
| Conditions for safe storage, including any incompatibilities | Not available. |

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

| Components | Type | Value | Form |
|---------------------------------|------|---|-------------------------------------|
| Aluminium (CAS 7429-90-5) | PEL | 5 mg/m ³ 15 mg/m ³ | Respirable dust. Total dust. |
| Graphite (CAS 7782-42-5) | PEL | 5 mg/m ³ 15 mg/m ³ | Respirable fraction. Total dust. |
| Magnesium Oxide (CAS 1309-48-4) | PEL | 15 mg/m ³ | Total particulate. |

US. OSHA Table Z-3 (29 CFR 1910.1000)

| Components | Type | Value |
|--------------------------|------|----------|
| Graphite (CAS 7782-42-5) | TWA | 15 mppcf |

US. ACGIH Threshold Limit Values

| Components | Type | Value | Form |
|---------------------------------|------|----------------------|----------------------|
| Aluminium (CAS 7429-90-5) | TWA | 1 mg/m ³ | Respirable fraction. |
| Graphite (CAS 7782-42-5) | TWA | 2 mg/m ³ | Respirable fraction. |
| Magnesium Oxide (CAS 1309-48-4) | TWA | 10 mg/m ³ | Inhalable fraction. |

US. NIOSH: Pocket Guide to Chemical Hazards

| Components | Type | Value | Form |
|---------------------------|------|--|--|
| Aluminium (CAS 7429-90-5) | TWA | 5 mg/m ³ 5 mg/m ³ 10 mg/m ³ | Welding fume or pyrophoric powder. Respirable. Total |
| Graphite (CAS 7782-42-5) | TWA | 2.5 mg/m ³ | Respirable. |

| | |
|--|---|
| Biological limit values | No biological exposure limits noted for the ingredient(s). |
| Exposure guidelines | The resin binder in this product was specifically engineered to have low toxicity, with minimal free-phenol (less than 100ppm in this refractory product) and no free-formaldehyde. Under certain conditions, thermal decomposition products may still include carbon monoxide, carbon dioxide, formaldehyde, phenol and aromatic and/or aliphatic compounds. |
| Appropriate engineering controls | Not available. |
| Individual protection measures, such as personal protective equipment | |
| Eye/face protection | Not available. |
| Skin protection | |
| Hand protection | Not available. |
| Other | Not available. |
| Respiratory protection | Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. |
| Thermal hazards | Not available. |

9. Physical and chemical properties

Appearance

| | |
|--|----------------|
| Physical state | Solid. |
| Form | Not available. |
| Color | Not available. |
| Odor | Not available. |
| Odor threshold | Not available. |
| pH | Not available. |
| Melting point/freezing point | Not available. |
| Initial boiling point and boiling range | Not available. |
| Flash point | Not available. |
| Evaporation rate | Not available. |
| Flammability (solid, gas) | Not available. |

Upper/lower flammability or explosive limits

| | |
|--|----------------|
| Flammability limit - lower (%) | Not available. |
| Flammability limit - upper (%) | Not available. |
| Explosive limit - lower (%) | Not available. |
| Explosive limit - upper (%) | Not available. |
| Vapor pressure | Not available. |
| Vapor density | Not available. |
| Relative density | Not available. |
| Solubility(ies) | |
| Solubility (water) | Not available. |
| Partition coefficient (n-octanol/water) | Not available. |
| Auto-ignition temperature | Not available. |
| Decomposition temperature | Not available. |
| Viscosity | Not available. |

10. Stability and reactivity

| | |
|---|----------------|
| Reactivity | Not available. |
| Chemical stability | Not available. |
| Possibility of hazardous reactions | Not available. |

| | |
|---|---|
| Conditions to avoid | Refractories containing crystalline silica may, after service, contain more or less crystalline silica. Care must be taken to avoid and/or control dust from demolition. If in doubt of the proper protection, seek advice from a safety professional. The organic binder in this product falls into a class known as phenolic resin. Refractory products using this type of binder are supplied in two forms, (1) shaped products such as brick and (2) monolithics such as refractory plastics and rams. The hazards associated with phenolic resin are different in the two forms. For pre-cured shapes (brick), the binder has been reacted or polymerized by heat to its solid form prior to shipment. On decomposition by heating, where there is sufficient air and heating rate, the gaseous products are mostly carbon dioxide and water. Under low or limited oxygen supply, decomposition products during heat-up and early service may include phenol, as well as aromatic and/or aliphatic derivatives. After a campaign in service, this refractory product should be completely coked and in that condition the material for disposal would be carbon and an inorganic oxide. During field installation of non-cured unshaped products (monolithics), there is a possibility of exposure to trace amounts of phenol by skin contact and inhalation. After the product has been heated to high temperatures in service, it will have similar decomposition characteristics to pre-cured shapes. |
| Incompatible materials | Incompatibility is based strictly upon potential theoretical reactions between chemicals and may not be specific to industrial application exposure. Contact your sales representative for clarification. |
| Hazardous decomposition products | Not available. |

11. Toxicological information

Information on likely routes of exposure

| | |
|---------------------|----------------|
| Inhalation | Not available. |
| Skin contact | Not available. |
| Eye contact | Not available. |
| Ingestion | Not available. |

Symptoms related to the physical, chemical and toxicological characteristics Not available.

Information on toxicological effects

| | |
|--|----------------|
| Acute toxicity | Not available. |
| Skin corrosion/irritation | Not available. |
| Serious eye damage/eye irritation | Not available. |

Respiratory or skin sensitization

| | |
|----------------------------------|----------------|
| Respiratory sensitization | Not available. |
| Skin sensitization | Not available. |

Germ cell mutagenicity Not available.

Carcinogenicity

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

| | |
|---|----------------|
| Reproductive toxicity | Not available. |
| Specific target organ toxicity - single exposure | Not available. |
| Specific target organ toxicity - repeated exposure | Not available. |
| Aspiration hazard | Not available. |

12. Ecological information

| | |
|--------------------------------------|--|
| Ecotoxicity | No ecotoxicity data noted for the ingredient(s). |
| Persistence and degradability | Not available. |
| Bioaccumulative potential | Not available. |
| Mobility in soil | Not available. |
| Other adverse effects | Not available. |

13. Disposal considerations

| | |
|--|---|
| Disposal instructions | This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. |
| Hazardous waste code | Not applicable. |
| Waste from residues / unused products | Not available. |
| Contaminated packaging | Not available. |

14. Transport information

| | |
|---|-----------------------------------|
| DOT | Not regulated as dangerous goods. |
| IATA | Not regulated as dangerous goods. |
| IMDG | Not regulated as dangerous goods. |
| Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code | Not available. |

15. Regulatory information

US federal regulations All chemical substances in this product are listed on the TSCA chemical substance inventory where required.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

| Chemical name | CAS number | % by wt. |
|----------------------|-------------------|-----------------|
| Aluminium | 7429-90-5 | 1 - 2.5 |

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. Massachusetts RTK - Substance List

Aluminium (CAS 7429-90-5)
 Graphite (CAS 7782-42-5)
 Magnesium Oxide (CAS 1309-48-4)

US. New Jersey Worker and Community Right-to-Know Act

Aluminium (CAS 7429-90-5)
 Graphite (CAS 7782-42-5)
 Magnesium Oxide (CAS 1309-48-4)

US. Pennsylvania Worker and Community Right-to-Know Law

Aluminium (CAS 7429-90-5)
 Graphite (CAS 7782-42-5)
 Magnesium Oxide (CAS 1309-48-4)

US. Rhode Island RTK

Aluminium (CAS 7429-90-5)

US. California Proposition 65**US - California Proposition 65 - CRT: Listed date/Carcinogenic substance**

Formaldehyde (CAS 50-00-0) Listed: January 1, 1988

International Inventories

| Country(s) or region | Inventory name | On inventory (yes/no)* |
|-----------------------------|--|------------------------|
| Australia | Australian Inventory of Chemical Substances (AICS) | Yes |
| Canada | Domestic Substances List (DSL) | Yes |
| Canada | Non-Domestic Substances List (NDSL) | No |
| China | Inventory of Existing Chemical Substances in China (IECSC) | Yes |
| Europe | European Inventory of Existing Commercial Chemical Substances (EINECS) | No |
| Europe | European List of Notified Chemical Substances (ELINCS) | No |
| Japan | Inventory of Existing and New Chemical Substances (ENCS) | No |
| Korea | Existing Chemicals List (ECL) | Yes |
| New Zealand | New Zealand Inventory | Yes |
| Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | Yes |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes |

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
 A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 06-23-2015

Version # 01

Disclaimer This information is based on our present knowledge on creation date. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Revision Information Product and Company Identification: Material Attributes