1. Identification

Product identifier: KORUNDAL XD/C
Other means of identification:
Brand Code: 2279

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: 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. Wear protective gloves/protective clothing/eye protection.

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. Wear protective gloves/protective clothing/eye protection.

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. Wear protective gloves/protective clothing/eye protection.

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium Oxide (Non-Fibrous)</td>
<td></td>
<td>1344-28-1</td>
<td>60 - 80</td>
</tr>
<tr>
<td>Mullite</td>
<td></td>
<td>1302-93-8</td>
<td>20 - 40</td>
</tr>
<tr>
<td>Amorphous Silica</td>
<td>SILICA, AMORPHOUS, FUMED SILICA (CRYSTALLINE FREE)</td>
<td>7631-86-9</td>
<td>2.5 - 10</td>
</tr>
</tbody>
</table>

| TRADE SECRET*                  | Proprietary*                             | 0.1 - 1     |

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation: Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact: Wash off with soap and water. Get medical attention if irritation develops and persists.
Eye contact
Rinse with water. Get medical attention if irritation develops and persists.
Rinse mouth. Get medical attention if symptoms occur.

Ingestion
Direct contact with eyes may cause temporary irritation.

Most important symptoms/effects, acute and delayed

Indication of immediate medical attention and special treatment needed
Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General information
If concerned: Get medical advice. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

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
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up
Stop the flow of material, if this is without risk. Following product recovery, flush area with water. Avoid discharge into drains, water courses or onto the ground.

Environmental precautions
For waste disposal, see section 13 of the SDS.

7. Handling and storage

Precautions for safe handling
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid prolonged exposure. Should be handled in closed systems, if possible. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities
Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

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

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)</td>
<td>PEL</td>
<td>5 mg/m3</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mg/m3</td>
<td>Total dust.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amorphous Silica (CAS 7631-86-9)</td>
<td>TWA</td>
<td>0.8 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20 mppcf</td>
</tr>
</tbody>
</table>

US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)</td>
<td>TWA</td>
<td>1 mg/m3</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Mullite (CAS 1302-93-8)</td>
<td>TWA</td>
<td>1 mg/m3</td>
<td>Respirable fraction.</td>
</tr>
</tbody>
</table>
US. NIOSH: Pocket Guide to Chemical Hazards

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amorphous Silica (CAS 7631-86-9)</td>
<td>TWA</td>
<td>6 mg/m³</td>
</tr>
</tbody>
</table>

**Biological limit values**
No biological exposure limits noted for the ingredient(s).

**Appropriate engineering controls**
Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**
If contact is likely, safety glasses with side shields are recommended.

**Skin protection**
- **Hand protection**: Wear appropriate chemical resistant gloves.
- **Other**: Use of an impervious apron is recommended.

**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**
Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations**
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.

9. **Physical and chemical properties**

**Appearance**
- **Physical state**: Solid.
- **Form**: Solid
- **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: The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability: Material is stable under normal conditions.
Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use.
Conditions to avoid: Contact with incompatible materials.
Incompatible materials: Strong oxidizing agents. 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: No hazardous decomposition products are known.

11. Toxicological information
Information on likely routes of exposure
- Inhalation: Prolonged inhalation may be harmful.
- Skin contact: No adverse effects due to skin contact are expected.
- Eye contact: Direct contact with eyes may cause temporary irritation.
- Ingestion: Expected to be a low ingestion hazard.
Symptoms related to the physical, chemical and toxicological characteristics: Direct contact with eyes may cause temporary irritation.

Information on toxicological effects
- Acute toxicity: Not available.
- Skin corrosion/irritation: Prolonged skin contact may cause temporary irritation.
- Serious eye damage/eye irritation: Direct contact with eyes may cause temporary irritation.
- Respiratory or skin sensitization: Not a respiratory sensitizer.
- Skin sensitization: This product is not expected to cause skin sensitization.
- Germ cell mutagenicity: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
- Carcinogenicity: May cause cancer.
  - IARC Monographs. Overall Evaluation of Carcinogenicity
    Amorphous Silica (CAS 7631-86-9): Not classifiable as to carcinogenicity to humans.
  - US. National Toxicology Program (NTP) Report on Carcinogens: Not available.
- Reproductive toxicity: This product is not expected to cause reproductive or developmental effects.
- Specific target organ toxicity - single exposure: Not classified.
- Specific target organ toxicity - repeated exposure: Not classified.
- Aspiration hazard: Not an aspiration hazard.
- Chronic effects: Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information
Ecotoxicity: The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and degradability: No data is available on the degradability of this product.
Bioaccumulative potential  No data available.
Mobility in soil  No data available.
Other adverse effects  No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

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 applicable.

15. Regulatory information

US federal regulations  This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. 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.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - No
Delayed Hazard - Yes
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)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>% by wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium Oxide (Non-Fibrous)</td>
<td>1344-28-1</td>
<td>60 - 80</td>
</tr>
</tbody>
</table>

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 Oxide (Non-Fibrous) (CAS 1344-28-1)
- Amorphous Silica (CAS 7631-86-9)

**US. New Jersey Worker and Community Right-to-Know Act**
- Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)
- Amorphous Silica (CAS 7631-86-9)

**US. Pennsylvania Worker and Community Right-to-Know Law**
- Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)
- Amorphous Silica (CAS 7631-86-9)

**US. Rhode Island RTK**
- Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)

**US. California Proposition 65**
- California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

### International Inventories

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

* "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s).
* "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**: 11-11-2015  
**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.

Composition / Information on Ingredients: After Reaction Composition