SAFETY DATA SHEET

1. Identification

Product identifier          D-CAST TRC-OR PLUS; D-CAST TRC-OR PLUS WF
Other means of identification
Brand Code                  8099, 8225
Recommended use             For Industrial Use Only
Recommended restrictions    Users should be informed of the potential presence of respirable dust and respirable crystalline silica as well as their potential hazards. Appropriate training in the proper use and handling of this material should be provided as required under applicable regulations.

Manufacturer/Supplier information

Manufacturer                  HarbisonWalker International
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
                             EMERGENCY #

2. Hazard(s) identification

Physical hazards             Not classified.
Health hazards                Carcinogenicity Category 1A
Environmental hazards         Not classified.
OSHA defined hazards          Not classified.

Label elements

Signal word                  Danger
Hazard statement             May cause cancer.
Precautionary statement
Prevention                   Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection.
Response                     If concerned: Get medical advice/attention.
Storage                      Store locked up.
Disposal                     Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)

Supplemental information

Users should be informed of the potential presence of respirable dust and respirable crystalline silica as well as their potential hazards. Overexposure to the respirable dust of crystalline silica (quartz or cristobalite, less than or equal to 5 microns in size) may lead to silicosis in humans, which is a progressive and irreversible lung disease. Appropriate training in the proper use and handling of this material should be provided as required under applicable regulations.

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>SILICON CARBIDE</td>
<td></td>
<td>409-21-2</td>
<td>10 - 20</td>
</tr>
</tbody>
</table>

Material name: D-CAST TRC-OR PLUS; D-CAST TRC-OR PLUS WF
8099, 8225    Version #: 01    Issue date: 06-05-2015
### Chemical name | Common name and synonyms | CAS number | %
---|---|---|---
Cement, Alumina, Chemicals | 65997-16-2 | 2.5 - 10 |
Fumes, Silica | 69012-64-2 | 2.5 - 10 |
Spinel (Mg(AlO2)2) | 1302-67-6 | 2.5 - 10 |
Carbon Black | 1333-86-4 | 1 - 2.5 |
Kyanite | 1302-76-7 | 1 - 2.5 |
Silicon | 7440-21-3 | 1 - 2.5 |
Quartz (SiO2) | 14808-60-7 | 0.1 - 1 |
Titanium Dioxide | 13463-67-7 | 0.1 - 1 |
Other components below reportable levels | | 1 - 2.5 |

*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**
Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists.

**Ingestion**
Rinse mouth. Get medical attention if symptoms occur.

**Most important symptoms/effects, acute and delayed**
Dusts may irritate the respiratory tract, skin and eyes.

**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. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. 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. Collect dust using a vacuum cleaner equipped with HEPA filter.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Avoid the generation of dusts during clean-up. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. For waste disposal, see section 13 of the SDS.

**Environmental precautions**
Avoid discharge into drains, water courses or onto the ground.

### 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. Minimize dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Do not breathe dust. Do not breathe dust. Avoid prolonged exposure. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.
8. Exposure controls/personal protection

Occupational exposure limits

<table>
<thead>
<tr>
<th>Components</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)</td>
<td>5 mg/m3</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Carbon Black (CAS 1333-86-4)</td>
<td>15 mg/m3</td>
<td>Total dust.</td>
</tr>
<tr>
<td>Silicon (CAS 7440-21-3)</td>
<td>5 mg/m3</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>SILICON CARBIDE (CAS 409-21-2)</td>
<td>15 mg/m3</td>
<td>Total dust.</td>
</tr>
<tr>
<td>Titanium Dioxide (CAS 13463-67-7)</td>
<td>15 mg/m3</td>
<td>Total dust.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fumes, Silica (CAS 69012-64-2)</td>
<td>0.8 mg/m3</td>
<td></td>
</tr>
<tr>
<td>Quartz (SiO2) (CAS 14808-60-7)</td>
<td>0.1 mg/m3, 2.4 mppcf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20 mppcf</td>
<td>Total dust.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)</td>
<td>1 mg/m3</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Carbon Black (CAS 1333-86-4)</td>
<td>3 mg/m3</td>
<td>Inhalable fraction.</td>
</tr>
<tr>
<td>Kyanite (CAS 1302-76-7)</td>
<td>1 mg/m3</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Quartz (SiO2) (CAS 14808-60-7)</td>
<td>0.025 mg/m3</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Spinel (MglAlO2)2) (CAS 1302-67-6)</td>
<td>1 mg/m3</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Titanium Dioxide (CAS 13463-67-7)</td>
<td>10 mg/m3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Black (CAS 1333-86-4)</td>
<td>0.1 mg/m3</td>
<td></td>
</tr>
<tr>
<td>Fumes, Silica (CAS 69012-64-2)</td>
<td>6 mg/m3</td>
<td></td>
</tr>
<tr>
<td>Quartz (SiO2) (CAS 14808-60-7)</td>
<td>0.05 mg/m3</td>
<td>Respirable dust.</td>
</tr>
<tr>
<td>Silicon (CAS 7440-21-3)</td>
<td>5 mg/m3, 10 mg/m3</td>
<td>Respirable. Total</td>
</tr>
<tr>
<td>SILICON CARBIDE (CAS 409-21-2)</td>
<td>5 mg/m3, 10 mg/m3</td>
<td>Respirable. Total</td>
</tr>
</tbody>
</table>

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled.
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. If engineering measures are not sufficient to maintain concentrations of dust particulates below the Occupational Exposure Limit (OEL), suitable respiratory protection must be worn. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection

Chemical respirator with organic vapor cartridge, full facepiece, dust and mist filter.

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 Powder.

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
Acids. Chlorine.
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**
  Dust may irritate respiratory system. Prolonged inhalation may be harmful.

- **Skin contact**
  Dust or powder may irritate the skin.

- **Eye contact**
  Dust may irritate the eyes.

- **Ingestion**
  Expected to be a low ingestion hazard.

Symptoms related to the physical, chemical and toxicological characteristics
Dusts may irritate the respiratory tract, skin and eyes.

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**
  - **Respiratory 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
In 1997, IARC (the International Agency for Research on Cancer) concluded that crystalline silica inhaled from occupational sources can cause lung cancer in humans. However in making the overall evaluation, IARC noted that "carcinogenicity was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." (IARC Monographs on the evaluation of the carcinogenic risks of chemicals to humans, Silica, silicates dust and organic fibres, 1997, Vol. 68, IARC, Lyon, France.) In June 2003, SCOEL (the EU Scientific Committee on Occupational Exposure Limits) concluded that the main effect in humans of the inhalation of respirable crystalline silica dust is silicosis. "There is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis (and, apparently, not in employees without silicosis exposed to silica dust in quarries and in the ceramic industry). Therefore, preventing the onset of silicosis will also reduce the cancer risk..." (SCOEL SUM Doc 94-final, June 2003) According to the current state of the art, worker protection against silicosis can be consistently assured by respecting the existing regulatory occupational exposure limits. May cause cancer. Occupational exposure to respirable dust and respirable crystalline silica should be monitored and controlled.

**IARC Monographs. Overall Evaluation of Carcinogenicity**
- Carbon Black (CAS 1333-86-4) 2B Possibly carcinogenic to humans.
- Fumes, Silica (CAS 69012-64-2) 3 Not classifiable as to carcinogenicity to humans.
- Quartz (SiO2) (CAS 14808-60-7) 1 Carcinogenic to humans.
- Titanium Dioxide (CAS 13463-67-7) 2B Possibly carcinogenic to humans.

**US. National Toxicology Program (NTP) Report on Carcinogens**
- Quartz (SiO2) (CAS 14808-60-7) Known To Be Human Carcinogen.

- Not listed.

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. One or more components are not listed on TSCA. 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 - 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)
- Carbon Black (CAS 1333-86-4)
- Fumes, Silica (CAS 69012-64-2)
- Quartz (SiO2) (CAS 14808-60-7)
- Silicon (CAS 7440-21-3)
- SILICON CARBIDE (CAS 409-21-2)
- Titanium Dioxide (CAS 13463-67-7)

US. New Jersey Worker and Community Right-to-Know Act
- Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)
- Carbon Black (CAS 1333-86-4)
- Fumes, Silica (CAS 69012-64-2)
- Quartz (SiO2) (CAS 14808-60-7)
- Silicon (CAS 7440-21-3)
- SILICON CARBIDE (CAS 409-21-2)
- Titanium Dioxide (CAS 13463-67-7)

US. Pennsylvania Worker and Community Right-to-Know Law
- Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)
- Carbon Black (CAS 1333-86-4)
- Fumes, Silica (CAS 69012-64-2)
- Quartz (SiO2) (CAS 14808-60-7)
- Silicon (CAS 7440-21-3)
- SILICON CARBIDE (CAS 409-21-2)
- Titanium Dioxide (CAS 13463-67-7)

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

US. California Proposition 65
WARNING: This product contains a chemical known to the State of California to cause cancer.

US. California Proposition 65 - CRT: Listed date/Carcinogenic substance
- Carbon Black (CAS 1333-86-4) Listed: February 21, 2003
- Quartz (SiO2) (CAS 14808-60-7) Listed: October 1, 1988
- Titanium Dioxide (CAS 13463-67-7) Listed: September 2, 2011

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>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>No</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>Country(s) or region</td>
<td>Inventory name</td>
<td>On inventory (yes/no)*</td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------------------------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
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<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
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<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>No</td>
</tr>
</tbody>
</table>

*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: 06-05-2015
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: Product Codes
Transport Information: Material Transportation Information