SAFETY DATA SHEET

1. Identification

Name of the substance or mixture (trade name) | DV-38
Brand Code | 5251
Major recommended uses for the substance or mixture | For Industrial Use Only
Specific restrictions for use of the substance or mixture | Avoid dry cutting, blasting, or dust generation.

Manufacturer/Importer/Distributor information

Manufacturer

- Company name: HarbisonWalker International
- Address: 1305 Cherrington Parkway, Suite 100
  Moon Township, PA 15108, USA
  United States
- Telephone: General Phone: 412-375-6600
  CHEMTREC EMERGENCY: 1-800-424-9300
- Website: www.thinkHWI.com
- E-mail: sds@thinkHWI.com
- Contact person: Corporate Product Safety

Emergency telephone number | Not available.

2. Hazards identification

GHS classification

This item is defined as an article per OSHA, REACH, and WHMIS and is therefore exempt from labeling. A Safety Data Sheet is available.

This item is not Classified as hazardous. 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.

GHS labeling elements, including precautionary statements

This item is defined as an article per OSHA, REACH, and WHMIS and is therefore exempt from labeling. A Safety Data Sheet is available.

This item is not Classified as hazardous. 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.

Other hazards which do not result in classification

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Other information | The Safety Information Sheet Chemicals of hazardous chemical can be obtained through phone, email or on the company website.

3. Composition/information on ingredients

Mixture

<table>
<thead>
<tr>
<th>Common chemical name or technical name</th>
<th>CAS number</th>
<th>Concentration or concentration range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mullite</td>
<td>1302-93-8</td>
<td>30 - 50</td>
</tr>
<tr>
<td>ALUMINIUM ORTHOPHOSPHATE</td>
<td>7784-30-7</td>
<td>2.5 - 10</td>
</tr>
<tr>
<td>Cristobalite</td>
<td>14464-46-1</td>
<td>1 - 3</td>
</tr>
<tr>
<td>Other components below reportable levels</td>
<td>60 - 80</td>
<td></td>
</tr>
</tbody>
</table>
Crystalline silica may be present at low concentrations; most of this is encapsulated in the coarse aggregate or as part of the clays or sands.

4. First-aid measures

First-aid measures

Dental contact
Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact
Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

Eye contact
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

Ingestion
Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Most important symptoms/effects, acute and delayed
Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Prolonged exposure may cause chronic effects.

Personal protection for first-aid responders
IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Notes to physician
Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

5. Fire-fighting measures

Means of fire extinguishing
Use fire-extinguishing media appropriate for surrounding materials.

Suitable extinguishing media
Not available.

Unsuitable extinguishing media
Not available.

Specific hazards arising from the chemical
Not available.

Protective measures taken by firefighting crews
Not available.

6. Control measures for spills and leaks

Personal precautions, protective equipment and emergency procedures

To be taken by those who are not involved in rendering emergency services
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

To be taken by those who are involved in rendering emergency services
Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

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

Methods and materials for containment and cleaning up
Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers. 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. Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. Do not breathe dust. Do not get in eyes, on skin, or on clothing. When using, do not eat, drink or smoke. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities
Store away from incompatible materials (see Section 10 of the SDS).
8. Exposure controls/personal protection

Control parameters

Follow standard monitoring procedures.

Occupational exposure limits

Brazil.OELs. (NR - 15, Annex 11) Hazardous Chemical Agents for which Occupational Exposure and Inspection Limits have been Established

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALUMINIUM ORTHOPHOSPHATE (CAS 7784-30-7) &amp; Cristobalite (CAS 14464-46-1)</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
</tbody>
</table>
| US. ACGIH Threshold Limit Values

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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. Eye wash facilities and emergency shower must be available when handling this product.

Personal protective measures

Eyes and face protection

Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection

Hand protection

Wear appropriate chemical resistant gloves.

Other

Wear appropriate chemical resistant clothing. 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.

Hygiene measures

Observe any medical surveillance requirements. 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

Brick or Cast Shape 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 temperature range

Not available.

Flash point

Not available.

Evaporation rate

Not available.

Flammability (solid, gas)

Not available.
Upper/lower flammability or explosive limits

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<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability limit - lower (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammability limit - upper (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Explosive limit - lower (%)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Explosive limit - upper (%)</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

Explosive properties: Not explosive.

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.

Hazardous decomposition products: No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation: May cause irritation to the respiratory system.

Skin contact: Causes severe skin burns.

Eye contact: Causes serious eye damage.

Ingestion: Causes digestive tract burns.

Symptoms: Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Acute toxicity: Not known.

Skin irritation and corrosion: Causes severe skin burns and eye damage.

Serious eye damage/eye irritation: Causes serious eye damage.

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.

ACGIH Carcinogens
ALUMINIUM ORTHOPHOSPHATE (CAS 7784-30-7) A4 Not classifiable as a human carcinogen.
Cristobalite (CAS 14464-46-1) A2 Suspected human carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity
Cristobalite (CAS 14464-46-1) 1 Carcinogenic to humans.

Toxic to reproduction
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
Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
Not an aspiration hazard.

Chronic effects
Causes damage to organs through prolonged or repeated exposure. 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.

Partition coefficient n-octanol / water (log Kow)
Not available.

Bioconcentration factor (BCF)
Not available.

Mobility in soil
No data available for this product.

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. Considerations on final disposal

Recommended methods for final destination
Residual waste Not available.
Contaminated packaging Not available.
Local disposal regulations
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.

14. Transport information

National regulations
ANTT
Not regulated as dangerous goods.

International regulations
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

15. Regulatory information

Federal regulations

This chemical product safety data sheet was prepared in accordance with the Brazilian Standard (ABNT NBR 14725-4: Safety data sheet for chemicals (SDS)).

Brazil. Controlled products that must be reported to the Army (Decree No. 3655, Annex 1, as amended)
Not applicable.

Brazil. Drug precursors (Ordinance No. 1.274)
Not applicable.

Brazil. Ozone depleting substances (Decree No. 99.280, Annexes A, B, C and E, as amended)
Not applicable.

Brazil. Use and physiological effects of chemical products (Decree No. 3665, Annex 3)
Not applicable.

POPs (Decree No. 5.472 promulgates the Stockholm Convention on persistent organic pollutants)
Not listed.

International regulations

Montreal Protocol
Not applicable.

Stockholm Convention
Not applicable.

Rotterdam Convention
Not applicable.

Kyoto protocol
Not applicable.

Basel Convention
Not applicable.

16. Other information

Significant information, yet not specifically related to the previous sections
Not available.

Legends and abbreviations
Composition / Information on Ingredients: After Reaction Composition
GHS: Classification

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.