1. Identification

Product identifier: FOUNDRYPAK 55P

Other means of identification:
- Brand Code: 990A
- 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:
- Company name: HarbisonWalker International
- Address: 1305 Cherrington Parkway, Suite 100, Moon Township, Pennsylvania 15108 US
- Telephone: General Phone: 412-375-6600
- Emergency phone number:
  - CHEMTREC 24 HOUR EMERGENCY #: 1-800-424-9300
- Website: www.thinkHWI.com

2. Hazard(s) identification

Physical hazards: Not classified.

Health hazards:
- Skin corrosion/irritation: Category 1A
- Serious eye damage/eye irritation: Category 1
- Carcinogenicity: Category 1A
- Specific target organ toxicity, repeated exposure: Category 2

Environmental hazards: Not classified.

OSHA defined hazards: Not classified.

Label elements

Signal word: Danger

Hazard statement: Causes severe skin burns and eye damage. Causes serious eye damage. May cause cancer. May cause damage to organs through prolonged or repeated exposure.

Precautionary statement

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust/mist. Wash thoroughly after handling. Wear eye/face protection. Wear protective gloves/protective clothing/eye protection.

Response: If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If concerned: Get medical advice/attention. Immediately call a poison center/doctor. Wash contaminated clothing before reuse.

Storage: Store locked up.

Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC): None known.
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

3.1 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>Mullite</td>
<td></td>
<td>1302-93-8</td>
<td>40 - 60</td>
</tr>
<tr>
<td>Aluminium Oxide (Non-Fibrous)</td>
<td></td>
<td>1344-28-1</td>
<td>10 - 20</td>
</tr>
<tr>
<td>Cristobalite</td>
<td></td>
<td>14464-46-1</td>
<td>10 - 20</td>
</tr>
<tr>
<td>Kyanite</td>
<td></td>
<td>1302-76-7</td>
<td>2.5 - 10</td>
</tr>
<tr>
<td>Orthophosphoric Acid</td>
<td></td>
<td>7664-38-2</td>
<td>2.5 - 10</td>
</tr>
<tr>
<td>Silicon Dioxide</td>
<td></td>
<td>7631-86-9</td>
<td>2.5 - 10</td>
</tr>
<tr>
<td>Quartz (SiO2)</td>
<td></td>
<td>14808-60-7</td>
<td>0.1 - 1</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td></td>
<td>13463-67-7</td>
<td>0.1 - 1</td>
</tr>
<tr>
<td>Other components below reportable levels</td>
<td></td>
<td></td>
<td>10 - 20</td>
</tr>
</tbody>
</table>

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

4. First-aid measures

4.1 Inhalation

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

4.2 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.

4.3 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.

4.4 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.

4.5 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.

4.6 Indication of immediate medical attention and special treatment needed

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.

4.7 General information

If concerned: Get medical advice. 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.

5. Fire-fighting measures

5.1 Suitable extinguishing media

Use fire-extinguishing media appropriate for surrounding materials.

5.2 Unsuitable extinguishing media

Not available.

5.3 Specific hazards arising from the chemical

Not applicable.

5.4 Special protective equipment and precautions for firefighters

Not available.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Material can be slippery when wet. 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.
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. Cover with plastic sheet to prevent spreading. 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.

Environmental precautions

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

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. 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. Avoid prolonged exposure. Should be handled in closed systems, if possible. 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>Orthophosphoric Acid (CAS 7664-38-2)</td>
<td>PEL</td>
<td>15 mg/m³</td>
<td>Total dust.</td>
</tr>
<tr>
<td>Titanium Dioxide (CAS 13463-67-7)</td>
<td>PEL</td>
<td>1 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>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cristobalite (CAS 14464-46-1)</td>
<td>TWA</td>
<td>0.15 mg/m³</td>
<td>Total dust.</td>
</tr>
<tr>
<td>Quartz (SiO2) (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.05 mg/m³</td>
<td>Respirable.</td>
</tr>
<tr>
<td>Silicon Dioxide (CAS 7631-86-9)</td>
<td>TWA</td>
<td>1.2 mppcf</td>
<td>Respirable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.3 mg/m³</td>
<td>Total dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.1 mg/m³</td>
<td>Respirable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.4 mppcf</td>
<td>Respirable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.8 mg/m³</td>
<td>Respirable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20 mppcf</td>
<td></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>Cristobalite (CAS 14464-46-1)</td>
<td>TWA</td>
<td>0.025 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Kyanite (CAS 1302-76-7)</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>
<tr>
<td>Orthophosphoric Acid (CAS 7664-38-2)</td>
<td>STEL</td>
<td>3 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Quartz (SiO2) (CAS 14808-60-7)</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Titanium Dioxide (CAS 13463-67-7)</td>
<td>TWA</td>
<td>0.025 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Components</td>
<td>Type</td>
<td>Value</td>
<td>Form</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-------</td>
<td>----------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Cristobalite (CAS 14464-46-1)</td>
<td>TWA</td>
<td>3 fibers/cm³</td>
<td>Fiber.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 fibers/cm³</td>
<td>Dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 mg/m³</td>
<td>Fiber, total</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 mg/m³</td>
<td>fibers, total dust</td>
</tr>
<tr>
<td>Orthophosphoric Acid (CAS 7664-38-2)</td>
<td>STEL</td>
<td>3 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Quartz (SiO2) (CAS 14808-60-7)</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Respirable dust.</td>
</tr>
<tr>
<td>Silicon Dioxide (CAS 7631-86-9)</td>
<td>TWA</td>
<td>0.05 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 mg/m³</td>
<td></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. Eye wash facilities and emergency shower must be available when handling this product.

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

**Eye/face protection**

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

**Skin protection**

Wear appropriate chemical resistant gloves.

**Hand protection**

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.

**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 Acids. Chlorine.
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. Prolonged inhalation may be harmful.
Skin contact Causes severe skin burns.
Eye contact Causes serious eye damage.
Ingestion Causes digestive tract burns.
Symptoms related to the physical, chemical and toxicological characteristics 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.

Information on toxicological effects
Acute toxicity Not available.
Skin corrosion/irritation 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.
IARC Monographs. Overall Evaluation of Carcinogenicity

Cristobalite (CAS 14464-46-1) 1 Carcinogenic to humans.
Quartz (SiO2) (CAS 14808-60-7) 1 Carcinogenic to humans.
Silicon Dioxide (CAS 7631-86-9) 3 Not classifiable as to carcinogenicity to humans.
Titanium Dioxide (CAS 13463-67-7) 2B Possibly carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens

Cristobalite (CAS 14464-46-1) Known To Be Human Carcinogen.
Reasonably Anticipated to be a Human Carcinogen.
Quartz (SiO2) (CAS 14808-60-7) Known To Be Human Carcinogen.

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

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
May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard
Not an aspiration hazard.

Chronic effects
May cause damage to organs through prolonged or repeated exposure. 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.
Orthophosphoric Acid (CAS 7664-38-2) Listed.

Not regulated.

Not listed.

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

Not listed.

Not listed.

Not listed.

Not listed.

Not listed.

Not listed.

Not listed.

Not listed.

Not listed.

Not listed.

Not listed.

Not listed.

Not listed.

Not listed.

Aluminium Oxide (Non-Fibrous) 1344-28-1 10 - 20

Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)
Cristobalite (CAS 14464-46-1)
Orthophosphoric Acid (CAS 7664-38-2)
Quartz (SiO2) (CAS 14808-60-7)
Silicon Dioxide (CAS 7631-86-9)
Titanium Dioxide (CAS 13463-67-7)

Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)
Cristobalite (CAS 14464-46-1)
Orthophosphoric Acid (CAS 7664-38-2)
Quartz (SiO2) (CAS 14808-60-7)
Silicon Dioxide (CAS 7631-86-9)
Titanium Dioxide (CAS 13463-67-7)

Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)
Cristobalite (CAS 14464-46-1)
Orthophosphoric Acid (CAS 7664-38-2)
Quartz (SiO2) (CAS 14808-60-7)
Silicon Dioxide (CAS 7631-86-9)
Titanium Dioxide (CAS 13463-67-7)

Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)
Cristobalite (CAS 14464-46-1)
Orthophosphoric Acid (CAS 7664-38-2)
Quartz (SiO2) (CAS 14808-60-7)
Silicon Dioxide (CAS 7631-86-9)
Titanium Dioxide (CAS 13463-67-7)

Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)
Orthophosphoric Acid (CAS 7664-38-2)

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

Quartz (SiO2) (CAS 14808-60-7) Listed: October 1, 1988
Titanium Dioxide (CAS 13463-67-7) Listed: September 2, 2011
<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>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>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>
<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) and 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**: 06-02-2015  
**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.