SECTION 1: IDENTIFICATION

1.1. Product Identifier
Product Form: Mixture
Product Name: Ductal® Premix
Synonyms: Ductal® Premix
Metallic fibers (steel) or organic fibers (poly vinyl alcohol) and admixtures (superplasticizer) are added to Ductal® Premix by the end-user. Refer to metallic fiber, organic fiber and admixture vendor SDS’s for specific health and safety information.

1.2. Intended Use of the Product
Ductal® Premix is an ultra-high performance material used to produce a specialized concrete used in construction.

1.3. Name, Address, and Telephone of the Responsible Party
Company
Lafarge North America Inc.
8700 West Bryn Mawr Avenue, Suite 300
Chicago, IL 60631
Information: 773-372-1000 (9am to 5pm CST)
email: SDSinfo@Lafarge.com
Website: www.lafarge-na.com

1.4. Emergency Telephone Number
Emergency Number: 1-800-451-8346 (3E Hotline)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture
Classification (GHS-US)
Skin Irrit. 2 H315
Eye Dam. 1 H318
Skin Sens. 1 H317
Carc. 1A H350
STOT SE 3 H335
STOT RE 1 H372
Full text of H-phrases: see section 16

2.2. Label Elements
GHS-US Labeling
Hazard Pictograms (GHS-US):

Signal Word (GHS-US): Danger
Hazard Statements (GHS-US):
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H318 - Causes serious eye damage.
H335 - May cause respiratory irritation.
H350 - May cause cancer (Inhalation).
H372 - Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements (GHS-US):
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P260 - Do not breathe dust.
P264 - Wash hands, forearms, and exposed areas thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P272 - Contaminated work clothing must not be allowed out of the workplace.
P280 - Wear eye protection, face shield, protective clothing, protective gloves, and
respiratory protection.
P302+P352 - IF ON SKIN: Wash with plenty of water.
P304+P340 - IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 - Immediately call a POISON CENTER, a doctor.
P333+P313 - IF in SKIN irritation or rash occurs: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P403+P405 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

2.3. Other Hazards
Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.

2.4. Unknown Acute Toxicity (GHS-US) No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances
Not applicable

3.2. Mixture

<table>
<thead>
<tr>
<th>Name</th>
<th>Product Identifier</th>
<th>% (w/w)</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartz</td>
<td>(CAS No) 14808-60-7</td>
<td>30 - 60, 60-75</td>
<td>Carc. 1A, H350</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3, H335</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STOT RE 1, H372</td>
</tr>
<tr>
<td>Cement, portland, chemicals</td>
<td>(CAS No) 65997-15-1</td>
<td>30 - 40</td>
<td>Skin Irrit. 2, H315</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Dam. 1, H318</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin Sens. 1, H317</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3, H335</td>
</tr>
<tr>
<td>Fumes, silica</td>
<td>(CAS No) 69012-64-2</td>
<td>&lt; 0.1, 0.1 - 1, 1 - 5, 5 - 10, 10 - 15</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of First Aid Measures
General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
Inhalation: When symptoms occur: go into open air and ventilate suspected area. Get immediate medical advice/attention.
Skin Contact: Remove contaminated clothing. Gently wash with plenty of soap and water followed by rinsing with water for at least 15 minutes. Call a POISON CENTER or doctor/physician if you feel unwell. Wash contaminated clothing before reuse.
Eye Contact: Rinse cautiously with water for at least 60 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.
Ingestion: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

4.2. Most Important Symptoms and Effects Both Acute and Delayed
General: Causes serious eye damage. Causes skin irritation. Causes damage to organs through prolonged or repeated exposure. May cause an allergic skin reaction. May cause respiratory irritation. May cause cancer.
Inhalation: May cause respiratory irritation. This product contains crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica from this product can cause silicosis, a seriously disabling and fatal lung disease.
Skin Contact: Causes skin irritation. May cause an allergic skin reaction. Symptoms may include: Redness, pain, swelling, itching, burning, dryness, and dermatitis.
Eye Contact: Causes serious eye damage. Symptoms may include: Redness, pain, swelling, itching, burning, tearing, and blurred vision.
Ingestion: Ingestion is likely to be harmful or have adverse effects.
Chronic Symptoms: Causes damage to organs through prolonged or repeated exposure. May cause cancer by inhalation.
4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed
If you feel unwell, seek medical advice (show the label where possible).

SECTION 5: FIRE-FIGHTING MEASURES
5.1. Extinguishing Media
- Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.
- Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special Hazards Arising From the Substance or Mixture
- Fire Hazard: Non-combustible.
- Explosion Hazard: Product is not explosive.
- Reactivity: Hazardous reactions will not occur under normal conditions.

5.3. Advice for Firefighters
- Precautionary Measures: Exercise caution when fighting any chemical fire.
- Firefighting Instructions: Do not allow run-off from fire fighting to enter drains or water sources. Do not breathe fumes or vapors from fire.
- Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.
- Hazardous Combustion Products: None.

Reference to Other Sections
Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES
6.1. Personal Precautions, Protective Equipment and Emergency Procedures
- General Measures: Do not get in eyes, on skin, or on clothing. Do not breathe dust.
- 6.1.1. For Non-Emergency Personnel
- Protective Equipment: Use appropriate personal protection equipment (PPE).
- 6.1.2. For Emergency Personnel
- Protective Equipment: Equip cleanup crew with proper protection.
- Emergency Procedures: Ventilate area.

6.2. Environmental Precautions
- Prevent entry to sewers and public waters.

6.3. Methods and Material for Containment and Cleaning Up
- For Containment: Place spilled material into a container. Avoid actions that cause dust to become airborne. Avoid inhalation of dust. Wear appropriate protective equipment as described in Section 8. Do not wash product down sewage and drainage systems or into bodies of water (e.g. streams).
- Methods for Cleaning Up: Clear up spills immediately and dispose of waste safely.

6.4. Reference to Other Sections
See heading 8, Exposure Controls and Personal Protection. Concerning disposal elimination after cleaning, see item 13.

SECTION 7: HANDLING AND STORAGE
7.1. Precautions for Safe Handling
- Additional Hazards When Processed: Cutting, crushing or grinding cement clinker, hardened cement, concrete or other crystalline silica-bearing materials will release respirable crystalline silica. Use all appropriate measures of dust control or suppression, and Personal Protective Equipment (PPE) described in Section 8 below.
- Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

7.2. Conditions for Safe Storage, Including Any Incompatibilities
- Technical Measures: Comply with applicable regulations.
- Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Store locked up.

7.3. Specific End Use(s) Not available
## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

<table>
<thead>
<tr>
<th>Cement, portland, chemicals (65997-15-1)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>OEL TWA (mg/m³)</td>
</tr>
<tr>
<td>Mexico</td>
<td>OEL STEL (mg/m³)</td>
</tr>
<tr>
<td>USA ACGIH</td>
<td>ACGIH TWA (mg/m³)</td>
</tr>
<tr>
<td>USA OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
</tr>
<tr>
<td>USA NIOSH</td>
<td>NIOSH REL (TWA) (mg/m³)</td>
</tr>
<tr>
<td>USA IDLH</td>
<td>US IDLH (mg/m³)</td>
</tr>
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<td>OEL TWA (mg/m³)</td>
</tr>
<tr>
<td>British Columbia</td>
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<td>OEL TWA (mg/m³)</td>
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<tr>
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<td>OEL TWA (mg/m³)</td>
</tr>
<tr>
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<td>OEL TWA (mg/m³)</td>
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<tr>
<td>Prince Edward Island</td>
<td>OEL TWA (mg/m³)</td>
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<td>Québec</td>
<td>VEMP (mg/m³)</td>
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<td>OEL TWA (mg/m³)</td>
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</table>

<table>
<thead>
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<th></th>
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<td>Mexico</td>
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<td>USA ACGIH</td>
<td>ACGIH TWA (mg/m³)</td>
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<td>OEL TWA (mg/m³)</td>
</tr>
<tr>
<td>Northwest Territories</td>
<td>OEL TWA (mg/m³)</td>
</tr>
</tbody>
</table>
8.2. Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use local exhaust or general dilution ventilation or other suppression methods to maintain dust levels below exposure limits. Power equipment should be equipped with proper dust collection devices.


Materials for Protective Clothing: Corrosionproof clothing.

Hand Protection: Wear chemically resistant protective gloves.

Eye Protection: Chemical safety goggles and face shield.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: Wear approved mask.

Environmental Exposure Controls: Avoid release to the environment.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>Physical State</td>
<td>Solid</td>
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<tr>
<td>Appearance</td>
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<tr>
<td>Odor</td>
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</tr>
<tr>
<td>Odor Threshold</td>
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<tr>
<td>pH</td>
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<td>Evaporation Rate</td>
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<tr>
<td>Melting Point</td>
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<tr>
<td>Freezing Point</td>
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<tr>
<td>Boiling Point</td>
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<tr>
<td>Flash Point</td>
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<tr>
<td>Auto-ignition Temperature</td>
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</tr>
<tr>
<td>Decomposition Temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not available</td>
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<tr>
<td>Lower Flammable Limit</td>
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<tr>
<td>Upper Flammable Limit</td>
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</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not available</td>
</tr>
<tr>
<td>Relative Vapor Density at 20 °C</td>
<td>Not available</td>
</tr>
</tbody>
</table>
Ductal® Premix
Safety Data Sheet
According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations

Relative Density: Not available
Specific Gravity: 3.2
Solubility: Water: 0.1 - 1 % (Slight)
Partition Coefficient: N-Octanol/Water: Not available
Viscosity: Not available
Explosion Data – Sensitivity to Mechanical Impact: Not expected to present an explosion hazard due to mechanical impact.
Explosion Data – Sensitivity to Static Discharge: Not expected to present an explosion hazard due to static discharge.

SECTION 10: STABILITY AND REACTIVITY
10.1. Reactivity: Hazardous reactions will not occur under normal conditions.
10.2. Chemical Stability: Product is stable.
10.3. Possibility of Hazardous Reactions: Hazardous polymerization will not occur.
10.6. Hazardous Decomposition Products: None.

SECTION 11: TOXICOLOGICAL INFORMATION
11.1. Information on Toxicological Effects - Product
Acute Toxicity: Not classified
LD50 and LC50 Data: Not available
Skin Corrosion/Irritation: Causes skin irritation.
ph: 12 - 13 (in water)
Serious Eye Damage/Irritation: Causes serious eye damage.
ph: 12 - 13 (in water)
Respiratory or Skin Sensitization: May cause an allergic skin reaction.
Germ Cell Mutagenicity: Not classified
Teratogenicity: Not classified
Carcinogenicity: May cause cancer (Inhalation).
Specific Target Organ Toxicity (Repeated Exposure): Causes damage to organs through prolonged or repeated exposure.
Reproductive Toxicity: Not classified
Specific Target Organ Toxicity (Single Exposure): May cause respiratory irritation.
Aspiration Hazard: Not classified
Symptoms/Injuries After Inhalation: May cause respiratory irritation. This product contains crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica from this product can cause silicosis, a seriously disabling and fatal lung disease.
Symptoms/Injuries After Skin Contact: Causes skin irritation. May cause an allergic skin reaction. Symptoms may include: Redness, pain, swelling, itching, burning, dryness, and dermatitis.
Symptoms/Injuries After Eye Contact: Causes serious eye damage. Symptoms may include: Redness, pain, swelling, itching, burning, tearing, and blurred vision.
Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.
Chronic Symptoms: Causes damage to organs through prolonged or repeated exposure. May cause cancer by inhalation.
11.2. Information on Toxicological Effects - Ingredient(s)
LD50 and LC50 Data:
Quartz (14808-60-7)
LD50 Oral Rat > 5000 mg/kg
LD50 Dermal Rat > 5000 mg/kg
Quartz (14808-60-7)
IARC Group 1
National Toxicology Program (NTP) Status Known Human Carcinogens.

SECTION 12: ECOLOGICAL INFORMATION
12.1. Toxicity No additional information available
Persistence and Degradability

Ductal® Premix

Persistence and Degradability
Not established.

12.3. Bioaccumulative Potential

Ductal® Premix

Bioaccumulative Potential
Not established.

12.4. Mobility in Soil
Not available

12.5. Other Adverse Effects
Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Sewage Disposal Recommendations: Do not empty into drains. Do not dispose of waste into sewer.

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, state, national, provincial, territorial and international regulations.

SECTION 14: TRANSPORT INFORMATION

14.1. In Accordance with DOT
Not regulated for transport

14.2. In Accordance with IMDG
Not regulated for transport

14.3. In Accordance with IATA
Not regulated for transport

14.4. In Accordance with TDG
Not regulated for transport

SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

Ductal® Premix

SARA Section 311/312 Hazard Classes
Immediate (acute) health hazard
Delayed (chronic) health hazard

SARA Section 313 - Emission Reporting
This product may contain constituents listed under SARA (Title III) Section 313, but not in amounts requiring supplier notification under 40 CFR Part 372 Subpart C.

Cement, portland, chemicals (65997-15-1)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Quartz (14808-60-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Fumes, silica (69012-64-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. US State Regulations

Quartz (14808-60-7)
U.S. - California - Proposition 65 - Carcinogens List
WARNING: This product contains chemicals known to the State of California to cause cancer.

Cement, portland, chemicals (65997-15-1)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Quartz (14808-60-7)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

15.3. Canadian Regulations

Ductal® Premix
WHMIS Classification
Class E - Corrosive Material
Ductal® Premix
Safety Data Sheet
According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations

Cement, portland, chemicals (65997-15-1)
Listed on the Canadian DSL (Domestic Substances List)
Listed on the Canadian IDL (Ingredient Disclosure List)
WHMIS Classification
Class E - Corrosive Material
Class D Division 2 Subdivision B - Toxic material causing other toxic effects

Quartz (14808-60-7)
Listed on the Canadian DSL (Domestic Substances List)
Listed on the Canadian IDL (Ingredient Disclosure List)
IDL Concentration 1 %
WHMIS Classification
Class D Division 2 Subdivision A - Very toxic material causing other toxic effects

Fumes, silica (69012-64-2)
Listed on the Canadian DSL (Domestic Substances List)
WHMIS Classification
Uncontrolled product according to WHMIS classification criteria

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION
Revision Date : 04/21/2015
Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carc. 1A</td>
<td>Carcinogenicity Category 1A</td>
</tr>
<tr>
<td>Eye Dam. 1</td>
<td>Serious eye damage/eye irritation Category 1</td>
</tr>
<tr>
<td>Skin Irrit. 2</td>
<td>Skin corrosion/irritation Category 2</td>
</tr>
<tr>
<td>Skin Sens. 1</td>
<td>Skin sensitization Category 1</td>
</tr>
<tr>
<td>STOT RE 1</td>
<td>Specific target organ toxicity (repeated exposure) Category 1</td>
</tr>
<tr>
<td>STOT SE 3</td>
<td>Specific target organ toxicity (single exposure) Category 3</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>H317</td>
<td>May cause an allergic skin reaction</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation</td>
</tr>
<tr>
<td>H350</td>
<td>May cause cancer</td>
</tr>
<tr>
<td>H372</td>
<td>Causes damage to organs through prolonged or repeated exposure</td>
</tr>
</tbody>
</table>

Party Responsible for the Preparation of This Document
Lafarge North America Inc.
+1 773-372-1000 (9am to 5pm CST)
An electronic version of this SDS is available at: www.lafarge-na.com under the Sustainability and Products sections. Please direct any inquiries regarding the content of this SDS to SDSinfo@Lafarge.com.

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