ARDEX X 77
by ARDEX Engineered Cements

HPD UNIQUE IDENTIFIER: 21626
CLASSIFICATION: 09 30 13 Ceramic Tiling

PRODUCT DESCRIPTION: Ideal for large format porcelain tile installations in the most demanding environments, ARDEX X 77 is a smooth, creamy and easy to trowel polymer-modified mortar formulated with MICROTEC® Technology with outstanding strength, flexibility and sag resistance. ARDEX X 77 is perfect solution for the most difficult installations in any environment including large format thin tile installations. The world’s most advanced tiling mortar!

- True 60-minute open time
- Unmatched sag resistance
- Unique creamy consistency; extremely easy to apply
- Ideal for high traffic areas and exterior facades
- Pot Life: 3 hours • 40lb. (18 kg) and 20lb. (9 kg) bag; Gray and White
- Outstanding coverage: 110 sq. ft. (10.2 m²)

Section 1: Summary

Nested Method / Product Threshold

CONTENT IN DESCENDING ORDER OF QUANTITY

Summary of product contents and results from screening individual chemical substances against HPD Priority Hazard Lists and the GreenScreen for Safer Chemicals®. The HPD does not assess whether using or handling this product will expose individuals to its chemical substances or any health risk. Refer to Section 2 for further details.

VOLATILE ORGANIC COMPOUND (VOC) CONTENT

VOC Content data is not applicable for this product category.

CERTIFICATIONS AND COMPLIANCE

VOC emissions: UL/GreenGuard Gold Certified
LCA: Environmental Product Declaration

CONSISTENCY WITH OTHER PROGRAMS

Pre-checked for LEED v4 Material Ingredients Option 1

Third Party Verified?

- Yes
- No

PREPARER: Self-Prepared
VERIFIER:
VERIFICATION #: 
SCREENING DATE: 2020-09-04
PUBLISHED DATE: 2020-09-04
EXPIRY DATE: 2023-09-04
This section lists contents in a product based on specific threshold(s) and reports detailed health information including hazards. This HPD uses the inventory method indicated above, which is one of three possible methods:

- Basic Inventory method with Product-level threshold.
- Nested Material Inventory method with Product-level threshold
- Nested Material Inventory method with individual Material-level thresholds

Definitions and requirements for the three inventory methods and requirements for each data field can be found in the HPD Open Standard version 2.2, available on the HPDC website at: www.hpd-collaborative.org/hpd-2-2-standard

### PORTLAND CEMENT

**Product Threshold:** 1000 ppm  
**Residuals and Impurities Considered:** Yes  
**Material Type:** Geologically Derived Material

**Residuals and Impurities Notes:** ARDEX uses quarry-extracted ingredients, such as quartz, cement, limestone, and gypsum. As a result, suppliers of these ingredients indicate that raw materials may contain residual earthen material, such as sand, in extremely small quantities. These materials are listed on suppliers' Safety Data Sheets (SDS) and they are accounted for on the Safety Data Sheets of ARDEX products.

**Other Material Notes:** The exact percentages of the ingredients have been withheld by the manufacturer as trade secrets.

### SAND

**Product Threshold:** 1000 ppm  
**Residuals and Impurities Considered:** Yes  
**Material Type:** Geologically Derived Material

**Residuals and Impurities Notes:** ARDEX uses quarry-extracted ingredients, such as quartz, cement, limestone, and gypsum. As a result, suppliers of these ingredients indicate that raw materials may contain residual earthen material, such as sand, in extremely small quantities. These materials are listed on suppliers' Safety Data Sheets (SDS) and they are accounted for on the Safety Data Sheets of ARDEX products.

**Other Material Notes:** The exact percentages of the ingredients have been withheld by the manufacturer as trade secrets.
### Quartz

- **HAZARD SCREENING METHOD:** Pharos Chemical and Materials Library
- **HAZARD SCREENING DATE:** 2020-09-04
- **%:** 30.0000 - 60.0000
- **GS:** LT-1
- **RC:** None
- **NANO:** No
- **SUBSTANCE ROLE:** Filler

<table>
<thead>
<tr>
<th>HAZARD TYPE</th>
<th>AGENCY AND LIST TITLES</th>
<th>WARNINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANCER</td>
<td>US CDC - Occupational Carcinogens</td>
<td>Occupational Carcinogen</td>
</tr>
<tr>
<td>CANCER</td>
<td>CA EPA - Prop 65</td>
<td>Carcinogen - specific to chemical form or exposure route</td>
</tr>
<tr>
<td>CANCER</td>
<td>US NIH - Report on Carcinogens</td>
<td>Known to be Human Carcinogen (respirable size - occupational setting)</td>
</tr>
<tr>
<td>CANCER</td>
<td>MAK</td>
<td>Carcinogen Group 1 - Substances that cause cancer in man</td>
</tr>
<tr>
<td>CANCER</td>
<td>IARC</td>
<td>Group 1 - Agent is carcinogenic to humans - inhaled from occupational sources</td>
</tr>
<tr>
<td>CANCER</td>
<td>IARC</td>
<td>Group 1 - Agent is Carcinogenic to humans</td>
</tr>
<tr>
<td>CANCER</td>
<td>GHS - New Zealand</td>
<td>6.7A - Known or presumed human carcinogens</td>
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<tr>
<td>CANCER</td>
<td>GHS - Japan</td>
<td>Carcinogenicity - Category 1A [H350]</td>
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<tr>
<td>CANCER</td>
<td>GHS - Australia</td>
<td>H350i - May cause cancer by inhalation</td>
</tr>
</tbody>
</table>

**SUBSTANCE NOTES:**

- **LIMESTONE**
  - **%:** 1.0000 - 5.0000
  - **PRODUCT THRESHOLD:** 1000 ppm
  - **RESIDUALS AND IMPURITIES CONSIDERED:** Yes
  - **MATERIAL TYPE:** Geologically Derived Material

**RESIDUALS AND IMPURITIES NOTES:** ARDEX uses quarry-extracted ingredients, such as quartz, cement, limestone, and gypsum. As a result, suppliers of these ingredients indicate that raw materials may contain residual earthen material, such as sand, in extremely small quantities. These materials are listed on suppliers' Safety Data Sheets (SDS) and they are accounted for on the Safety Data Sheets of ARDEX products.

**OTHER MATERIAL NOTES:**

### Limestone; Calcium Carbonate

- **HAZARD SCREENING METHOD:** Pharos Chemical and Materials Library
- **HAZARD SCREENING DATE:** 2020-09-04
- **%:** 1.0000 - 100.0000
- **GS:** LT-UNK
- **RC:** None
- **NANO:** No
- **SUBSTANCE ROLE:** Filler

<table>
<thead>
<tr>
<th>HAZARD TYPE</th>
<th>AGENCY AND LIST TITLES</th>
<th>WARNINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>None found</td>
<td></td>
<td>No warnings found on HPD Priority Hazard Lists</td>
</tr>
</tbody>
</table>

**SUBSTANCE NOTES:**
**VINYL ACETATE COPOLYMER**

**PRODUCT THRESHOLD:** 1000 ppm  
**RESIDUALS AND IMPURITIES CONSIDERED:** Yes  
**MATERIAL TYPE:** Polymeric Material

**RESIDUALS AND IMPURITIES NOTES:** Residuals and impurities are considered per raw material supplier Safety Data Sheets.

**OTHER MATERIAL NOTES:**

**ETHYLENE VINYL ACETATE POLYMER (EVA)**  
**ID:** 24937-78-8

**HAZARD SCREENING METHOD:** Pharos Chemical and Materials Library  
**HAZARD SCREENING DATE:** 2020-09-04

**%:** 1.0000 - 5.0000  
**GS:** LT-UNK  
**RC:** None  
**NANO:** No  
**SUBSTANCE ROLE:** Viscosity modifier

**HAZARD TYPE**  
**AGENCY AND LIST TITLES**  
**WARNINGS**

None found  
No warnings found on HPD Priority Hazard Lists

**SUBSTANCE NOTES:**

**CALCIUM SULFATE**  
**%:** 1.0000 - 5.0000

**PRODUCT THRESHOLD:** 1000 ppm  
**RESIDUALS AND IMPURITIES CONSIDERED:** Yes  
**MATERIAL TYPE:** Geologically Derived Material

**RESIDUALS AND IMPURITIES NOTES:** ARDEX uses quarry-extracted ingredients, such as quartz, cement, limestone, and gypsum. As a result, suppliers of these ingredients indicate that raw materials may contain residual earthen material, such as sand, in extremely small quantities. These materials are listed on suppliers’ Safety Data Sheets (SDS) and they are accounted for on the Safety Data Sheets of ARDEX products.

**OTHER MATERIAL NOTES:**

**CALCIUM SULFATE, 1_2-HYDRATE, POWDER**  
**ID:** 7778-18-9

**HAZARD SCREENING METHOD:** Pharos Chemical and Materials Library  
**HAZARD SCREENING DATE:** 2020-09-04

**%:** 1.0000 - 5.0000  
**GS:** LT-UNK  
**RC:** None  
**NANO:** No  
**SUBSTANCE ROLE:** Binder

**HAZARD TYPE**  
**AGENCY AND LIST TITLES**  
**WARNINGS**

None found  
No warnings found on HPD Priority Hazard Lists

**SUBSTANCE NOTES:**

**AMORPHOUS FUMED SILICA**  
**%:** 1.0000 - 5.0000

**PRODUCT THRESHOLD:** 1000 ppm  
**RESIDUALS AND IMPURITIES CONSIDERED:** Yes  
**MATERIAL TYPE:** Geologically Derived Material

**RESIDUALS AND IMPURITIES NOTES:** ARDEX uses quarry-extracted ingredients, such as quartz, cement, limestone, and gypsum. As a result, suppliers of these ingredients indicate that raw materials may contain residual earthen material, such as sand, in extremely small quantities. These materials are listed on suppliers’ Safety Data Sheets (SDS) and they are accounted for on the Safety Data Sheets of ARDEX products.
### SILICA FUME

**HAZARD SCREENING METHOD:** Pharos Chemical and Materials Library  
**HAZARD SCREENING DATE:** 2020-09-04

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<th>%: 1.0000 - 5.0000</th>
<th>GS: LT-P1</th>
<th>RC: None</th>
<th>NANO: No</th>
<th>SUBSTANCE ROLE: Viscosity modifier</th>
</tr>
</thead>
</table>

**HAZARD TYPE**  
**AGENCY AND LIST TITLES**  
**WARNINGS**

- **CANCER**  
  - GHS - Australia  
  - H350i - May cause cancer by inhalation

**SUBSTANCE NOTES:**

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### CALCIUM FORMATE

<table>
<thead>
<tr>
<th>%: 1.0000 - 5.0000</th>
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</thead>
</table>

**PRODUCT THRESHOLD:** 1000 ppm  
**RESIDUALS AND IMPURITIES CONSIDERED:** Yes  
**MATERIAL TYPE:** Geologically Derived Material

**RESIDUALS AND IMPURITIES NOTES:** ARDEX uses quarry-extracted ingredients, such as quartz, cement, limestone, and gypsum. As a result, suppliers of these ingredients indicate that raw materials may contain residual earthen material, such as sand, in extremely small quantities. These materials are listed on suppliers' Safety Data Sheets (SDS) and they are accounted for on the Safety Data Sheets of ARDEX products.

**OTHER MATERIAL NOTES:**

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### CALCIUM DIFORMATE

**HAZARD SCREENING METHOD:** Pharos Chemical and Materials Library  
**HAZARD SCREENING DATE:** 2020-09-04

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<tr>
<th>%: 0.1000 - 5.0000</th>
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<th>RC: None</th>
<th>NANO: No</th>
<th>SUBSTANCE ROLE: Catalyst</th>
</tr>
</thead>
</table>

**HAZARD TYPE**  
**AGENCY AND LIST TITLES**  
**WARNINGS**

- **None found**

**SUBSTANCE NOTES:**

- No warnings found on HPD Priority Hazard Lists
Section 3: Certifications and Compliance

This section lists applicable certification and standards compliance information for VOC emissions and VOC content. Other types of health or environmental performance testing or certifications completed for the product may be provided.

**VOC EMISSIONS**

**UL/GreenGuard Gold Certified**

<table>
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<tr>
<th>CERTIFYING PARTY:</th>
<th>Third Party</th>
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<tbody>
<tr>
<td>APPLICABLE FACILITIES:</td>
<td>All ARDEX manufacturing facilities.</td>
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<tr>
<td>CERTIFICATE URL:</td>
<td><a href="http://spot.ul.com">http://spot.ul.com</a></td>
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<tr>
<td>ISSUE DATE:</td>
<td>2020-08-01</td>
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<td>EXPIRY DATE:</td>
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<td>CERTIFIER OR LAB:</td>
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</table>

**LCA**

**Environmental Product Declaration**

<table>
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<tr>
<th>CERTIFYING PARTY:</th>
<th>Third Party</th>
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<td>APPLICABLE FACILITIES:</td>
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<td>ISSUE DATE:</td>
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<td>EXPIRY DATE:</td>
<td>2021-09-30</td>
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<tr>
<td>CERTIFIER OR LAB:</td>
<td>Underwriters Laboratories</td>
</tr>
</tbody>
</table>

**CERTIFICATION AND COMPLIANCE NOTES:** Environmental Product Declaration (EPD) - Cement Mortar for Tile Installation, provided by the Tile Council of North America (TCNA) and prepared in accordance with ISO 14025 by UL Environment. The EPD provides information on environmental impacts of products over their life cycle.

Section 4: Accessories

This section lists related products or materials that the manufacturer requires or recommends for installation (such as adhesives or fasteners), maintenance, cleaning, or operations. For information relating to the contents of these related products, refer to their applicable Health Product Declarations, if available.

**CLEAN WATER**

**HPD URL:** No HPD link provided

**CONDITION WHEN RECOMMENDED OR REQUIRED AND/OR OTHER NOTES:**
Mix ARDEX X 77 with clean water in accordance with the technical data sheet.

Section 5: General Notes

Refer to the GHS Formatted Safety Data Sheet (SDS) and the Technical Data Sheet for additional information regarding the proper mixing and application of this product. Information can be found at www.ardexamericas.com.
The Health Product Declaration (HPD) Open Standard provides for the disclosure of product contents and potential associated human and environmental health hazards. Hazard associations are based on the HPD Priority Hazard Lists, the GreenScreen List Translator™, and when available, full GreenScreen® assessments. The HPD Open Standard v2.1 is not:

- a method for the assessment of exposure or risk associated with product handling or use,
- a method for assessing potential health impacts of: (i) substances used or created during the manufacturing process or (ii) substances created after the product is delivered for end use.

Information about life cycle, exposure and/or risk assessments performed on the product may be reported by the manufacturer in appropriate Notes sections, and/or, where applicable, in the Certifications section.

The HPD Open Standard was created and is supported by the Health Product Declaration Collaborative (the HPD Collaborative), a customer-led organization composed of stakeholders throughout the building industry that is committed to the continuous improvement of building products through transparency, openness, and innovation throughout the product supply chain.

The product manufacturer and any applicable independent verifier are solely responsible for the accuracy of statements and claims made in this document.

MANUFACTURER INFORMATION

MANUFACTURER: ARDEX Engineered Cements
ADDRESS: 400 Ardex Park Drive
Alliquippa PA 15001, USA
WEBSITE: www.ardexamericas.com

The listed contact is responsible for the validity of this HPD and attests that it is accurate and complete to the best of his or her knowledge.

KEY

Hazard Types
AQU Aquatic toxicity
CAN Cancer
DEV Developmental toxicity
END Endocrine activity
EYE Eye irritation/corrosivity
GEN Gene mutation
GLO Global warming
LAN Land toxicity
MAM Mammalian/systemic/organ toxicity
MUL Multiple
NEU Neurotoxicity
NF Not found on Priority Hazard Lists
OZO Ozone depletion
PBT Persistent, bioaccumulative, and toxic
PHY Physical hazard (flammable or reactive)
REP Reproductive
RES Respiratory sensitization
SKI Skin sensitization/irritation/corrosivity
UNK Unknown

GreenScreen (GS)
BM-4 Benchmark 4 (prefer-safer chemical)
BM-3 Benchmark 3 (use but still opportunity for improvement)
BM-2 Benchmark 2 (use but search for safer substitutes)
BM-1 Benchmark 1 (avoid - chemical of high concern)
BM-U Benchmark Unspecified (due to insufficient data)
LT-P1 List Translator Possible 1 (Possible Benchmark-1)
LT-1 List Translator 1 (Likely Benchmark-1)
LT-UNK List Translator Benchmark Unknown (the chemical is present on at least one GreenScreen Specified List, but the information contained within the list did not result in a clear mapping to a LT-1 or LT1 score.)
NoGS No GreenScreen.

Recycled Types
PreC Pre-consumer recycled content
PostC Post-consumer recycled content
UNK Inclusion of recycled content is unknown
None Does not include recycled content

Other Terms:
GHS SDS Globally Harmonized System of Classification and Labeling of Chemicals Safety Data Sheet

Inventory Methods:
Nested Method / Material Threshold Substances listed within each material per threshold indicated per material
Nested Method / Product Threshold Substances listed within each material per threshold indicated per product
Basic Method / Product Threshold Substances listed individually per threshold indicated per product

Nano Composed of nano scale particles or nanotechnology
Third Party Verified Verification by independent certifier approved by HPDC
Preparer Third party preparer, if not self-prepared by manufacturer
Applicable facilities Manufacturing sites to which testing applies

The product manufacturer and any applicable independent verifier are solely responsible for the accuracy of statements and claims made in this document.