

HPD UNIQUE IDENTIFIER: (available when published)

CLASSIFICATION: 03 30 00 Cast-in-Place Concrete

PRODUCT DESCRIPTION: National Benchmark average for 1m3 of Ready Mixed Concrete; Compressive Strength Range 3001-4000 psi (20.69-27.58 MPa) and 40-49% Fly Ash.

Section 1: Summary

Nested Method / Product Threshold

CONTENT INVENTORY

<b>Inventory Reporting Format</b>	<b>Threshold Level</b>	<b>Residuals/Impurities Evaluation</b>	<i>For all contents above the threshold, the manufacturer has:</i>
<input checked="" type="radio"/> Nested Materials Method	<input checked="" type="radio"/> 100 ppm	Completed in 6 of 6 Materials	<b>Characterized</b> <input checked="" type="radio"/> Yes <input type="radio"/> No
<input type="radio"/> Basic Method	<input type="radio"/> 1,000 ppm	<b>Explanation(s) provided for Residuals/Impurities?</b>	<i>Provided weight and role.</i>
<b>Threshold Disclosed Per</b>	<input type="radio"/> Per GHS SDS	<input checked="" type="radio"/> Yes <input type="radio"/> No	<b>Screened</b> <input checked="" type="radio"/> Yes <input type="radio"/> No
<input type="radio"/> Material	<input type="radio"/> Other		<i>Provided screening results using HPDC-approved methods.</i>
<input checked="" type="radio"/> Product			<b>Identified</b> <input checked="" type="radio"/> Yes <input type="radio"/> No
			<i>Provided name and CAS RN or other identifier.</i>

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.

NESTED MATERIAL | MATERIAL OR SUBSTANCE | RESIDUAL OR IMPURITY

GREENSCREEN SCORE | HAZARD TYPE

AGGREGATE [ LIMESTONE BM-3dg QUARTZ BM-1 | CAN | MAM | GEN ] PORTLAND CEMENT [ PORTLAND CEMENT LT-P1 | CAN | END | MAM ] FLY ASH [ FLY ASH LT-UNK ] WATER [ WATER (PRIMARY CASRN IS 7732-18-5) BM-4 ] WATER REDUCING ADMIXTURE [ WATER (PRIMARY CASRN IS 7732-18-5) BM-4 ] AIR ENTRAINING ADMIX. [ ]

Number of Greenscreen BM-4/BM3 contents ... 3

Contents highest-concern GreenScreen score(s) (BM-1, LT-1, LT-P1) ... LT-P1, BM-1

Nanomaterial ... No

INVENTORY AND SCREENING NOTES:

The threshold applied to Residuals and Impurities (R/I) is the same as that applied to intentionally added substances, i.e., 100 ppm or 1000 ppm. Residuals and impurities below the declared Inventory Threshold do not need to be reported on the HPD. This HPD was produced using primary information from the manufacturer, including CAS numbers and SDS when needed. Every effort has been made to report the substances in this product by the manufacturer to the listed threshold. This is a voluntary, self-reported effort. Any errors or omissions shall be considered a human error and therefore reported to the manufacturer. The manufacturer shall not be liable for omissions.

VOLATILE ORGANIC COMPOUND (VOC) CONTENT

VOC Content data is not applicable for this product category.

CERTIFICATIONS AND COMPLIANCE See Section 3 for additional listings.

VOC emissions: Inherently non-emitting source per LEED

CONSISTENCY WITH OTHER PROGRAMS

No pre-checks completed or disclosed.

Third Party Verified?

Yes

No

PREPARER: Self-Prepared

VERIFIER:

VERIFICATION #:

SCREENING DATE: 2023-08-18

PUBLISHED DATE: Not published

EXPIRY DATE: Not published

## Section 2: Content in Descending Order of Quantity

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 2.3, available on the HPDC website at: [www.hpd-collaborative.org/hpd-2-3-standard](http://www.hpd-collaborative.org/hpd-2-3-standard)

### AGGREGATE

#: 57.8500

PRODUCT THRESHOLD: 100 ppm      RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes      MATERIAL TYPE: Geologically Derived Material

RESIDUALS AND IMPURITIES NOTES: Impurities listed above the threshold are noted in this HPD by Quartz or Pharos databases. Residuals and impurities are considered following the HPD Best Practice Guidance, 10.02.17, version 1 "The threshold applied to Residuals and Impurities (R/I) is the same as that applied to intentionally added substances, i.e., 100 ppm or 1000 ppm. Residuals and impurities below the declared Inventory Threshold do not need to be reported on the HPD." This includes average data declared in the common product database or peer-reviewed scientific articles. For this product, no actual material has been tested. Therefore, residuals and impurities are for informational purposes only and are not a guarantee of presence in the actual building material. Pharos and PubChem (formerly TOXNET) are the main databases for researching potential residuals and impurities. Any R/I above the threshold shall be listed on the HPD; otherwise, if none are listed, then no residuals or impurities are common in that substance above the threshold.

OTHER MATERIAL NOTES: Aggregates are inert granular materials such as sand, round gravel, or crushed stone that, along with water and Portland cement, are an essential ingredient in concrete.

### LIMESTONE

ID: 1317-65-3

HAZARD DATA SOURCE: Pharos Chemical and Materials Library      HAZARD SCREENING DATE: 2023-08-18 10:35:44

#: 99.0000      GreenScreen: BM-3dg      RC: UNK      NANO: No      SUBSTANCE ROLE: Filler

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: POTENTIAL RESIDUAL: "Building materials, such as concrete and dimension stone (sandstone, granite, and limestone are examples) contain crystalline silica in the form of quartz." (USGS Crystalline Silica Primer) Limestone typically contains between 0.1% and 1% quartz. (MSHA MSDS & Specialty MSDS) - Per the Pharos Database.

### QUARTZ

ID: 14808-60-7

HAZARD DATA SOURCE: Pharos Chemical and Materials Library      HAZARD SCREENING DATE: 2023-08-18 10:35:44

#: 0.1000 - 1.0000      GreenScreen: BM-1      RC: UNK      NANO: No      SUBSTANCE ROLE: Impurity/Residual

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	US CDC - Occupational Carcinogens	Occupational Carcinogen
CAN	CA EPA - Prop 65	Carcinogen - specific to chemical form or exposure route
CAN	US NIH - Report on Carcinogens	Known to be Human Carcinogen (respirable size - occupational setting)
CAN	MAK	Carcinogen Group 1 - Substances that cause cancer in man
CAN	IARC	Group 1 - Agent is carcinogenic to humans - inhaled from occupational sources
CAN	IARC	Group 1 - Agent is Carcinogenic to humans
CAN	US NIH - Report on Carcinogens	Known to be a human Carcinogen
CAN	GHS - Japan	H350 - May cause cancer [Carcinogenicity - Category 1A]
CAN	GHS - Australia	H350i - May cause cancer by inhalation [Carcinogenicity - Category 1A or 1B]
CAN	GHS - New Zealand	Carcinogenicity category 1
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
GEN	GHS - Japan	H341 - Suspected of causing genetic defects [Germ cell mutagenicity - Category 2]
MAM	GHS - Australia	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organ toxicity - repeated exposure - Category 1]
MAM	GHS - New Zealand	Specific target organ toxicity - repeated exposure category 1
ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: Per Pharos database quartz =1% mass fraction of limestone as an impurity.

#### PORTLAND CEMENT

#: 18.2900

PRODUCT THRESHOLD: 100 ppm

RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes

MATERIAL TYPE: Geologically Derived Material

RESIDUALS AND IMPURITIES NOTES: Impurities listed above the threshold are noted in this HPD by Quartz or Pharos databases. Residuals and impurities are considered following the HPD Best Practice Guidance, 10.02.17, version 1 "The threshold applied to Residuals and Impurities (R/I) is the same as that applied to intentionally added substances, i.e., 100 ppm or 1000 ppm. Residuals and impurities below the declared Inventory Threshold do not need to be reported on the HPD." Pharos and PubChem (formerly TOXNET) are the main databases for researching potential residuals and impurities.

OTHER MATERIAL NOTES: TSCA Definition 2008: Portland cement is a mixture of chemical substances produced by burning or sintering at high temperatures (greater than 1200.degree.C (2192.degree.F)) raw materials which are predominantly calcium carbonate, aluminum oxide, silica, and iron oxide. The chemical substances which are manufactured are confined in a crystalline mass. This category includes all of the chemical substances specified below when they are intentionally manufactured in the production of Portland cement. The primary members of the category are Ca2SiO4 and Ca3SiO5. Other compounds listed below may also be included in combination with these primary substances.: CaAl2O4; CaAl4O7; CaAl12O1; Ca3Al2O6; Ca12Al14O33; CaO; Ca2Fe2O5; Ca2Al2SiO7; Ca4Al6SO16; Ca12Al14Cl2O32; Ca12Al14F2O32; Ca4Al2Fe2O10; Ca6A14Fe2O15 (National Library of Medicine Record)

**PORTLAND CEMENT**

ID: 65997-15-1

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-08-18 10:35:44**

%: **90.0000 - 95.0000** GreenScreen: **LT-P1** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Binder**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	MAK	Carcinogen Group 3B - Evidence of carcinogenic effects but not sufficient for classification
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: Impurities at or above the declared threshold 100ppm are noted.

**FLY ASH**

%: **12.1900**

PRODUCT THRESHOLD: **100 ppm** RESIDUALS AND IMPURITIES EVALUATION COMPLETED: **Yes** MATERIAL TYPE: **Other: Industrial By-product/Waste**

RESIDUALS AND IMPURITIES NOTES: Impurities listed above the threshold are noted in this HPD by Quartz or Pharos databases. Residuals and impurities are considered following the HPD Best Practice Guidance, 10.02.17, version 1 “The threshold applied to Residuals and Impurities (R/I) is the same as that applied to intentionally added substances, i.e., 100 ppm or 1000 ppm. Residuals and impurities below the declared Inventory Threshold do not need to be reported on the HPD.” This includes average data declared in the common product database or peer-reviewed scientific articles. For this product, no actual material has been tested. Therefore, residuals and impurities are for informational purposes only and are not a guarantee of presence in the actual building material. Pharos and PubChem (formerly TOXNET) are the main databases for researching potential residuals and impurities. Any R/I above the threshold shall be listed on the HPD; otherwise, if none are listed, then no residuals or impurities are common in that substance above the threshold.

OTHER MATERIAL NOTES: Fly ash is a by-product of coal-fired electric and steam generating plants. Fly ash utilization, especially in concrete, has significant environmental benefits including: (1) increasing the life of concrete roads and structures by improving concrete durability, (2) net reduction in energy use and greenhouse gas and other adverse air emissions when fly ash is used to replace or displace manufactured cement, (3) reduction in amount of coal combustion products that must be disposed in landfills, and (4) conservation of other natural resources and materials.

HAZARD DATA SOURCE: Pharos Chemical and Materials Library

HAZARD SCREENING DATE: 2023-08-18 10:35:47

#: 99.0000	GreenScreen: LT-UNK	RC: PreC	NANO: No	SUBSTANCE ROLE: Filler
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HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists
ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: Fly ash is 100% Pre consumer/Post Industrial recycled content, produced from the combustion of coal in electric utility or industrial boilers. Fly ash consists primarily of oxides of silicon, aluminum iron and calcium. Magnesium, potassium, sodium, titanium, and sulfur are also present to a lesser degree. When used as a mineral admixture in concrete, fly ash is classified as either Class C or Class F ash based on its chemical composition.

## WATER

#: 11.6600

PRODUCT THRESHOLD: 100 ppm	RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes	MATERIAL TYPE: Other: Water
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RESIDUALS AND IMPURITIES NOTES: Impurities listed above the threshold are noted in this HPD by Quartz or Pharos databases. Residuals and impurities are considered following the HPD Best Practice Guidance, 10.02.17, version 1 "The threshold applied to Residuals and Impurities (R/I) is the same as that applied to intentionally added substances, i.e., 100 ppm or 1000 ppm. Residuals and impurities below the declared Inventory Threshold do not need to be reported on the HPD." Pharos and PubChem (formerly TOXNET) are the main databases for researching potential residuals and impurities.

OTHER MATERIAL NOTES: No residuals or impurities are registered for this substance Per Pharos database.

## WATER (PRIMARY CASRN IS 7732-18-5)

ID: 1371582-34-1

HAZARD DATA SOURCE: Pharos Chemical and Materials Library

HAZARD SCREENING DATE: 2023-08-18 10:35:47

#: 100.0000	GreenScreen: BM-4	RC: UNK	NANO: No	SUBSTANCE ROLE: Diluent
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HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists
ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions  Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: No impurities are available for this substance Per Pharos database.

## WATER REDUCING ADMIXTURE

#: 0.0100

RESIDUALS AND IMPURITIES NOTES: Residuals and impurities are considered following the HPD Best Practice Guidance, 10.02.17, version 1 “The threshold applied to Residuals and Impurities (R/I) is the same as that applied to intentionally added substances, i.e., 100 ppm or 1000 ppm. Residuals and impurities below the declared Inventory Threshold do not need to be reported on the HPD.” Pharos and PubChem (formerly TOXNET) are the main databases for researching potential residuals and impurities.

OTHER MATERIAL NOTES: To complete this HPD peer-reviewed quality data has been used to fill in the gaps. Per the SDS there are no substances listed as hazardous in the additive. The Quartz database and the European Federation of Concrete Admixtures Association (EFCA)-Plastizicer EPD have been used for primary information. Per the EPD: “Plasticizers and superplasticizers essentially contain either lignosulphonate, naphthalene sulphonate, melamine sulphonate and polycarboxylate/ polycarboxylic or mixtures thereof. Defoaming agents and preservatives are added as minor components and auxiliaries. Active substance concentration lies between 10 and 40% by mass. The typical dosage of plasticizers lies between 0.2 and 1.6% (referred to the finished product) by mass in relation to the cement weight. The typical dosage of superplasticizers lies between 0.4 and 2.0% by mass in relation to the cement weight. The products covered by this EPD typically contain the following proportions by mass of constituent materials and auxiliaries referred to: Lignosulphonate\*: max. 40 % Naphthalene sulphonate\*: max. 40 % Melamine sulphonate\*: max. 45 % Polycarboxylate\*: max. 45 % Polyarylether max. 35 % Na-gluconate max. 35 % Additives: max. 5 % Water: approx. 55 - 75 %”.

**WATER (PRIMARY CASRN IS 7732-18-5)**

ID: 652133-48-7

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library**      HAZARD SCREENING DATE: **2023-08-18 10:35:47**

%: **70.0000 - 75.0000**      GreenScreen: **BM-4**      RC: **UNK**      NANO: **No**      SUBSTANCE ROLE: **Diluent**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions  Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: No impurities are registered for this substance by the Pharos database.

**AIR ENTRAINING ADMIX.**      %: **0.0040**

RESIDUALS AND IMPURITIES NOTES: Residuals and impurities are considered following the HPD Best Practice Guidance, 10.02.17, version 1 “The threshold applied to Residuals and Impurities (R/I) is the same as that applied to intentionally added substances, i.e., 100 ppm or 1000 ppm. Residuals and impurities below the declared Inventory Threshold do not need to be reported on the HPD.”

OTHER MATERIAL NOTES: All substances in this material are below the reportable threshold.

### 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	Inherently non-emitting source per LEED	
CERTIFYING PARTY: Self-declared	ISSUE DATE: 2023-08-05 00:00:00	CERTIFIER OR LAB: None
APPLICABLE FACILITIES: This is not facility based.	EXPIRY DATE:	
CERTIFICATE URL:		
CERTIFICATION AND COMPLIANCE NOTES: Per the LEED v4.1 standard for Building Design and Construction, page 207, Concrete is a non-emitting source. No VOC testing for emissions is necessary.		

### 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.*

No accessories are required for this product.

### Section 5: General Notes

Request specific mix design and HPD from your concrete supplier.



**MANUFACTURER INFORMATION**

MANUFACTURER: **NRMCA**  
 ADDRESS: **66 Canal Center Plaza**  
**Alexandria, Virginia 22314**  
 COUNTRY: **United States**

WEBSITE: **www.nrmca.org**  
 CONTACT NAME: **James Bogdan**  
 TITLE: **VP, Sustainability Initiatives**  
 PHONE: **4124204138**  
 EMAIL: **jbogdan@nrmca.org**

*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**

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

**GreenScreen (GS)**

<b>BM-4</b> Benchmark 4 (prefer-safer chemical)	<b>LT-P1</b> List Translator Possible 1 (Possible Benchmark-1)
<b>BM-3</b> Benchmark 3 (use but still opportunity for improvement)	<b>LT-1</b> List Translator 1 (Likely Benchmark-1)
<b>BM-2</b> Benchmark 2 (use but search for safer substitutes)	<b>LT-UNK</b> List Translator Benchmark Unknown
<b>BM-1</b> Benchmark 1 (avoid - chemical of high concern)	<b>NoGS</b> No GreenScreen.
<b>BM-U</b> Benchmark Unspecified (due to insufficient data)	

GreenScreen Benchmark scores sometimes also carry subscripts, which provide more context for how the score was determined. These are DG (data gap), TP (transformation product), and CoHC (chemical of high concern). For more information, see 2.2.2.4 GreenScreen® for Safer Chemicals, [www.greenscreenchemicals.org](http://www.greenscreenchemicals.org), and Best Practices for Hazard Screening on the HPDC website ([hpd-collaborative.org](http://hpd-collaborative.org)).

**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 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*



