# LW-4000-20-FA by NRMCA

**Disclaimer: Reference Use Only** 

This document is not intended to serve as a Health Product Declaration. It is solely provided for reference purposes.

**Health Product** Declaration v2.3

created via: HPDC Online Builder

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 20-29% Fly Ash.



# Section 1: Summary

# **Nested Method / Product Threshold**

### **CONTENT INVENTORY**

**Inventory Reporting** 

**Format** 

Nested Materials Method

C Basic Method

Threshold Disclosed Per

Material

Product

**Threshold Level** 

C 1,000 ppm C Per GHS SDS

Other

Residuals/Impurities Evaluation

Completed in 6 of 6 Materials

Explanation(s) provided for Residuals/Impurities?

Yes ○ No

For all contents above the threshold, the manufacturer has:

Characterized

Yes ○ No

Yes ○ No

Provided weight and role.

Screened

Provided screening results using HPDC-approved

methods.

Identified ⊙ Yes ○ No

Provided name and CAS RN or other identifier.

### 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 **IMPLIRITY** 

**GREENSCREEN SCORE | HAZARD TYPE** 

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

O Yes ⊙ No

PREPARER: Self-Prepared

orati

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

AGGREGATE	%: 57.1100	
PRODUCT THRESHOLD: 100	RESIDUALS AND IMPURITIES EVALUATION COMPLETED:	MATERIAL TYPE: Geologically Derived
ppm	Yes	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	E: Pharos Chemical and Materials Library		HAZARD SO	CREENING DATE: 2023-08-18 10:27:28
%: 99.0000	GreenScreen: BM-3dg	RC: UNK	NANO: No	SUBSTANCE ROLE: Filler
HAZARD TYPE	LIST NAME AND SOURCE		WARNINGS	
None found		c.i	No warnir	ngs found on HPD Priority Hazard Lists
ADDITIONAL LISTINGS	LIST NAME AND SOURCE	In	NOTIFICATION	
None found		Or.	No lis	stings 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.

WE 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	%: 24.4300
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PRODUCT THRESHOLD: 100	RESIDUALS AND IMPURITIES EVALUATION COMPLETED:	MATERIAL TYPE: Geologically Derived
ppm	Yes	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)

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PORTLAND CEMENT					ID: 65997-15-1
HAZARD DATA SOURCE:	Pharos Chemical and Materials Library	27,	HAZARD S	CREENING DATE:	2023-08-18 10:27:29
%: 90.0000 - 95.0000	GreenScreen: LT-P1	RC: UNK	NANO: <b>No</b>	SUBSTANCE F	ROLE: Binder
HAZARD TYPE	LIST NAME AND SOURCE		WARNINGS		
CAN	MAK		Carcinogen Group 3B - Evidence of carcinogenic effects but not sufficient for classification		carcinogenic effects
END	TEDX - Potential Endocrine Disru	uptors	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	.O.,	NOTIFICATION		
None found	, O		No li	stings found on Ad	ditional Hazard Lists

SUBSTANCE NOTES: Impurities at or above 100ppm are noted for this chemical substance.

WATER %: 12.3200

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Other: Water

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.

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

HAZARD DATA SOURCE:	Pharos Chemical and Materials Library	HAZARD SCREENING DATE: 2023-08-18 10:27:32
%: 100.0000	GreenScreen: BM-4	JNK 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 Commissio (EU EC)	on EU - REACH Exemptions
	(=0 =0)	Exempted from REACH Annex IV listing due to intrinsic safety

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

FLY ASH %: 6.1300

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

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FLY ASH ID: 68131-74-8

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 REDUCING ADMIXTURE %: 0.0100

None found

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

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. 45 % Polycarboxylate\*: max. 45 % Polyarylether max. 35 % Na-gluconate max. 35 % Additives: max. 5 % Water: approx. 55 - 75 %".

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No listings found on Additional Hazard Lists

HAZARD DATA SOURCE: Ph	naros Chemical and Materials Library	70	HAZARD S	CREENING DATE: 2023-08-18 10:27
%: 70.0000 - 75.0000	GreenScreen: BM-4	RC: UNK	NANO: <b>No</b>	SUBSTANCE ROLE: Diluent
HAZARD TYPE	LIST NAME AND SOURCE		WARNINGS	
None found	Ÿ		No warni	ngs found on HPD Priority Hazard Lis
ADDITIONAL LISTINGS	LIST NAME AND SOURCE		NOTIFICATION	
EXEMPT	European Union / European Co (EU EC)	mmission	EU - REACH Exer	mptions
	(20 20)	C.	Exempted from R safety	EACH Annex IV listing due to intrinsic

SUBSTANCE NOTES: No impurities are available for this substance.

AIR ENTRAINING ADMIX. %: 0.0030

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

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."

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



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 **EXPIRY DATE:** 

CERTIFIER OR LAB: None

APPLICABLE FACILITIES: This is not facility based. **CERTIFICATE URL:** 

CERTIFICATION AND COMPLIANCE NOTES: Per the LEED v4.1 standard for Building Design and Construction, page 207, Concrete is a nonemitting 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.

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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** 

**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

NoGS No GreenScreen.

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, and Best Practices for Hazard Screening on the HPDC website (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