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: 033000 Cast-in-Place Concrete
PRODUCT DESCRIPTION: National Benchmark average for 1 m 3 of Ready Mixed Concrete; Compressive Strength Range $3001-4000$ psi (20.6927.58 MPa) and 20-29\% Fly Ash.

## ミ Section 1: Summary

Nested Method / Product Threshold

## CONTENT INVENTORY

| Inventory Reporting | Threshold Level | Residuals/Impurities Evaluation | For all contents above the threshold, the manufacturer has:' |
| :---: | :---: | :---: | :---: |
| Format | © 100 ppm | Completed in 6 of 6 Materials | Characterized © Yes O No |
| - Nested Materials Method | © 1,000 ppm |  | Provided weight and role. |
| $\bigcirc$ Basic Method | $\bigcirc$ Per GHS SDS | Explanation(s) provided | Screened © Yes O No |
| Threshold Disclosed Per | O Other | - Yes O No | Provided screening results using HPDC-approved methods. |
| $\bigcirc$ Material |  |  | methods. <br> Identified <br> © Yes $O$ No |
| - Product |  |  | 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 IMPURITY
GREENSCREEN SCORE | HAZARD TYPE
AGGREGATE [ LIMESTONE BM-3dg QUARTZBM-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. [ ]

## VOLATILE ORGANIC COMPOUND (VOC) CONTENT

VOC Content data is not applicable for this product category.

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 ( $\mathrm{R} / \mathrm{I}$ ) 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.

## 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
c 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

| AGGREGATE | $\%: 57.1100$ |  |
| :--- | :--- | :--- | :--- |
| PRODUCT THRESHOLD: 100 RESIDUALS AND IMPURITIES EVALUATION COMPLETED: <br> ppm 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 peerreviewed 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 |  |  |  |
| :--- | :--- | :--- | :--- |
| HAZARD DATA SOURCE: | Pharos Chemical and Materials Library |  | HAZARD SCREENING DATE: 2023-08-18 10:27:28 |
| \%: $\mathbf{9 9 . 0 0 0 0}$ | GreenScreen: BM-3dg | RC: UNK | NANO: No |
| HAZARD TYPE | LIST NAME AND SOURCE |  | SUBSTANCE ROLE: Filler |

None found
ADDITIONAL LISTINGS
No warnings found on HPD Priority Hazard Lists
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 10:27:29
$\%:$ 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 $1 \mathrm{~A}]$ |
| CAN | GHS - Australia | H350i - May cause cancer by inhalation [Carcinogenicity <br> - 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 $\quad$ \%: $\mathbf{2 4 . 4 3 0 0}$

| PRODUCT THRESHOLD: 100 | RESIDUALS AND IMPURITIES EVALUATION COMPLETED: MATERIAL TYPE: Geologically Derived |
| :--- | :--- |
| ppm | Yes |
| 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 $\mathrm{Ca} 2 \mathrm{SiO}_{4}$ and Ca 3 SiO 5 . Other compounds listed below may also be included in combination with these primary substances.: CaAl2O4; CaAl4O7; CaAl12O1; Ca3AI2O6; Ca12Al14O33; CaO; Ca2Fe2O5; Ca2AI2SiO7; Ca4AI6SO16; Ca12Al14Cl2O32; Ca12Al14F2O32; Ca4AI2Fe2O10; 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 10:27:29 |  |
| \%: 90.0000 - 95.0000 | GreenScreen: LT-P1 | RC: UNK | NANO: No |
| HAZARD TYPE | LIST NAME AND SOURCE | WARNINGS |  |
| CAN | MAK | Carcinogen Group 3B - Evidence of carcinogenic effects <br> but not sufficient for classification |  |
| END | TEDX - Potential Endocrine Disruptors | Potential Endocrine Disruptor |  |

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

| WATER $\quad$ \%: 12.3200 |
| :--- |
| PRODUCT THRESHOLD: $100 \mathrm{ppm} \quad$ RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes $\quad$ 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. |

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


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

## 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 peerreviewed 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/l 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.
\%: $99.0000 \quad$ GreenScreen: LT-UNK PreC NANO: No SUBSTANCE ROLE: Filler

## HAZARD TYPE

LIST NAME AND SOURCE

## WARNINGS

| None found | No warnings found on HPD Priority Hazard Lists |
| :--- | :--- |
| ADDITIONAL LISTINGS NAME AND SOURCE | No listings found on Additional Hazard Lists |
| None found |  |

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 <br> \%: 0.0100

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/l) 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\%".

LIST NAME AND SOURCE

## WARNINGS

None found
No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS
LIST NAME AND SOURCE

European Union / European Commission (EU EC)

NOTIFICATION

EU - REACH Exemptions

Exempted from REACH Annex IV listing due to intrinsic safety

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."

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.

Inherently non-emitting source per LEED

ISSUE DATE: 2023-08-05 00:00:00

## EXPIRY DATE:

CERTIFYING PARTY: Self-declared
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.

No accessories are required for this product.

## 日 Section 5: General Notes

Request specific mix design and HPD from your concrete supplier.

## MANUFACTURER INFORMATION

MANUFACTURER: NRMCA<br>ADDRESS: 66 Canal Center Plaza<br>Alexandria, Virginia 22314<br>COUNTRY: United States

WEBSITE: www.nrmca.org<br>CONTACT NAME: James Bogdan<br>TITLE: VP, Sustainability Initiatives<br>PHONE: 4124204138<br>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 TranslatorTM, 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 andlor 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

