



Superior Precast Products, Inc
1950 Ravine Road • Kalamazoo, MI 49004
Telephone 269-344-7690 • Fax 269-344-7693



April 17, 2019

RE: Architectural Cast Stone Product and Testing Submittal Packet

Superior Precast Products is a certified Cast Stone Institute member. Our company has been producing Architectural Cast Stone for over 25 years. Our product meets the requirements of ASTM C 1364 and the specification requirements of 04720. Enclosed is our submittal packet including CSI certification, Project List, Test Reports and SDS sheets.

Sincerely,

Brian Bronkema

Brian Bronkema – Sales Manager
(269) 998-6055

Cast Stone Project List

Albion College Athletic Facility Improvements
Albion, MI

Bank of Holland
Grand Rapids, MI

Livonia 16th District Court
Livonia, MI

Barley Flats
Grand Rapids, MI

Madison Heights School
Madison Heights, MI

Battle Creek Central High School
Battle Creek, MI

Marshall Regional Law Enforcement
Marshall, MI

Beaumont Place
Enforcement Whitefish Bay, WI

Mercantile Bank Headquarters
Grand Rapids, MI

Bradley Crossing
Milwaukee, WI

Northern Michigan University- Housing
Marquette, MI

Campbell Oil Company
Massillon, OH

Notre Dame – Purcell Pavilion
South Bend, IN

Defiance Elementary
Defiance, OH

Sparrow Hospital Addition
Lansing, MI

Fenton Cornerstone Building
Fenton, MI

Spring Arbor University Library
Lansing, MI

First United Methodist Church
Grand Rapids, MI

Spring Elementary
Toledo, OH

Four Winds Casino
South Bend, IN

St. Mary's Hospital
Grand Rapids, MI

Grand Valley State University – Downtown Campus
Grand Rapids, MI

TBA Credit Union Headquarters
Traverse City, MI

Great Lakes Center for the Arts
Traverse City, MI

TI Automotive
Auburn Hills, MI

Heartland at Promedica Flower Hospital Campus
Sylvania, OH

University of Michigan – Public Health
Auburn Hills, MI

Hope College Jack H Miller Center for Musical Arts
Holland, MI

Washington Place
Traverse City, MI

Illinois Fire Service Institute
Champagne, IL

Washington Writer's Academy
Kalamazoo, MI

Ionia County Courthouse
Ionia, MI

Women's Health
Grand Rapids, MI

Lincoln Car Museum
Richland, MI

Zaragon Place
Ann Arbor, MI

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Cast Stone Test Reports



The Science You Build On.

Braun Intertec Corporation
11001 Hampshire Avenue S
Minneapolis, MN 55438

Phone: 952.995.2000
Fax: 952.995.2020
Web: braunintertec.com

**Sampling and Testing Architectural Cast Stone
Specifications per ASTM C1364**

Date: September 14, 2018

Project Number: B1809294

Client:
Superior Precast Products, Inc.
Julie Dintaman
1950 Ravine Road Suite B
Kalamazoo, MI 49004

Project Description:
Cast Stone Testing

Sample Data

Type of Unit: 2x2 Cube
Supplier: Superior Precast Products
Mix Design: 205
Date Cast: 8/9/18
Date Received: 9/3/18


**Standard Test Method for Absorption of Architectural Cast Stone (Test Method A, Cold Water)
ASTM C1195**

Sample Number:	A	B	C	Average	Specifications
Date Tested:	9/7/18	9/7/18	9/7/18		
Moisture Content as Received (%):	4.5	4.1	4.1	4.2	
Absorption (%):	5.1	5.0	5.1	5.1	Max 6.0

**Standard Test Method for Compressive Strength of Architectural Cast Stone
ASTM C1194**

Sample Number:	D	E	F	Average	Specifications
Date Tested:	9/7/18	9/7/18	9/7/18		
Moisture Content as Received (%):	3.8	3.7	3.6	3.7	
Width (in.):	2.03	2.03	2.02	2.03	
Height (in.):	2.09	2.15	2.12	2.12	
Length (in.):	2.03	2.03	2.02	2.03	
Compressive Strength (psi):	7630	6810	5700	6710	Min 6500

Remarks: The samples meet or exceed the specified strength and absorption requirements of ASTM C1364

Reviewed By: 
Justin Lashley
Sep 14 2018 1:41 PM
Justin Lashley
Concrete Engineer

ASTM C1194/C1195 Test Report
Sampling and Testing Architectural Cast Stone

Job No.: 19-240-1
Report Date: 2/21/2019

Client: Superior Precast Products Inc.
Address: 1950 Ravine Road
Kalamazoo, MI 49004

Testing Agency: National Concrete Masonry Association
Research and Development Laboratory
Address: 13750 Sunrise Valley Drive
Herndon, VA 20171-4662

Unit Specification: ASTM C1364-18

Sampling Party: Superior Precast Products Inc.

Date Samples Received: 2/12/2019

Unit Designation/Description:
2 x 2 x 2 inch Pre-cut Architectural Cast Stone
Mark: 'Color 252 #1-6'

Date of Casting: 1/23/2019

Summary of Test Results:

<u>Physical Property</u>	<u>Tested Values</u>	<u>ASTM C1364-18 Required Values</u>
Compressive Strength:	10550 psi	6500 psi minimum
Cold Water Absorption:	3.4 %	6.0 % maximum

The client delivered a set of pre-cut 2 x 2 x 2 inch cast stone cubes for testing. (3) - 2 x 2 x 2 inch specimens were tested for absorption and (3) - 2 x 2 x 2 inch specimens were tested for compression. The results of these tests are summarized above, with individual results listed below.

Absorption Specimens

*Absorption values are determined in accordance with *Method A (Cold Water Test)* as outlined in ASTM C1195-18.

Age of Specimen at Start of Testing: 27 days	Avg Width in.	Avg Height in.	Avg Length in.	Received Wt, W _R g	Saturated Surface-Dry Wt, W _S g	Oven-Dry Wt, W _D g	Absorption %	
Unit #1a	2.04	2.02	2.02	310.8	311.4	301.3	3.4	
Date Tested: 2/19/2019	Unit #2a	1.98	1.98	2.01	291.5	292.4	282.6	3.5
to	Unit #3a	2.00	2.01	1.99	296.2	297.1	287.2	3.4
2/21/2019	Average	2.01	2.00	2.01	299.5	300.3	290.4	3.4

Compression Specimens

*Compressive strength values are determined in accordance with ASTM C1194-18.

Age of Specimen: 28 days	Avg Width in.	Avg Height in.	Avg Length in.	Received Wt, W _R g	Maximum Compressive Load lb	Tested Compressive Strength psi	
Unit #1b	2.01	2.05	2.03	308.2	42450	10440	
Unit #2b	2.01	2.07	2.02	321.8	44810	11030	
Unit #3b	2.06	2.01	2.03	312.3	42660	10180	
Date Tested: 2/20/2019	Average	2.03	2.04	2.03	314.1	43310	10550

Comments: 1) These units comply with the compressive strength and cold water absorption requirements of ASTM C1364-18.



Douglas H. Ross
Manager, Research and Development Laboratory



Jason J. Thompson
Vice President of Engineering

ASTM C1194/C1195 Test Report
Sampling and Testing Architectural Cast Stone

Job No.: 19-240-2
Report Date: 3/6/2019

Client: Superior Precast Products Inc.
Address: 1950 Ravine Road
Kalamazoo, MI 49004

Testing Agency: National Concrete Masonry Association
Address: Research and Development Laboratory
13750 Sunrise Valley Drive
Herndon, VA 20171-4662

Sampling Party: Superior Precast Products Inc.

Unit Specification: ASTM C1364-18

Date Samples Received: 2/12/2019

Unit Designation/Description:
2 x 2 x 2 inch Pre-cut Architectural Cast Stone
Mark: 'Color 100 #7-12'

Date of Casting: 1/29/2019

Summary of Test Results:

Physical Property	Tested Values	Required Values
Compressive Strength:	12800 psi	6500 psi minimum
Cold Water Absorption:	4.2 %	6.0 % maximum

The client delivered a set of pre-cut 2 x 2 x 2 inch cast stone cubes for testing. (3) - 2 x 2 x 2 inch specimens were tested for absorption and (3) - 2 x 2 x 2 inch specimens were tested for compression. The results of these tests are summarized above, with individual results listed below.

Absorption Specimens

*Absorption values are determined in accordance with *Method A (Cold Water Test)* as outlined in ASTM C1195-18.

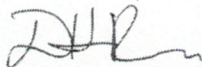
Age of Specimen at Start of Testing:	Avg Width	Avg Height	Avg Length	Received Wt, W _R	Saturated Surface-Dry Wt, W _S	Oven-Dry Wt, W _D	Absorption
27 days	in.	in.	in.	g	g	g	%
Unit #1a	2.03	2.04	2.01	309.1	309.7	297.0	4.3
Unit #2a	2.04	1.99	2.03	307.7	307.9	295.5	4.2
Unit #3a	2.03	2.01	2.02	298.1	298.7	286.7	4.2
Average	2.03	2.02	2.02	305.0	305.4	293.1	4.2

Compression Specimens

*Compressive strength values are determined in accordance with ASTM C1194-18.

Age of Specimen:	Avg Width	Avg Height	Avg Length	Received Wt, W _R	Maximum Compressive Load	Tested Compressive Strength
28 days	in.	in.	in.	g	lb	psi
Unit #1b	2.03	2.01	2.04	310.7	52680	12710
Unit #2b	2.02	2.02	1.99	302.3	51460	12800
Unit #3b	2.01	2.04	2.01	304.3	52090	12900
Average	2.02	2.02	2.01	305.8	52080	12800

Comments: 1) These units comply with the compressive strength and cold water absorption requirements of ASTM C1364-18.



Douglas H. Ross
Manager, Research and Development Laboratory



Jason J. Thompson
Vice President of Engineering

Sampling and Testing Architectural Cast Stone

Job No.: 18-246A
Report Date: 2/16/2018

Client: Superior Precast Products
Address: 1950 Ravine Road
Kalamazoo, MI 49004

Testing Agency: National Concrete Masonry Association
Research and Development Laboratory
Address: 13750 Sunrise Valley Drive
Herndon, VA 20171-4662

Project Identification: Verbal-Julie

Sampling Party: Superior Precast Products

Unit Specification: ASTM C1364-17

Date Samples Received: 2/2/2018

Unit Designation/Description:
Architectural Cast Stone
Mark: 'Color 102'

Date of Casting: 1/11/2018

Summary of Test Results:

<u>Physical Property</u>	<u>Tested Values</u>	<u>Required Values</u>
Compressive Strength:	9770 psi	6500 psi minimum
Cold Water Absorption:	4.3 %	6.0 % maximum

The client delivered one 5 x 18 x 18 inch sample piece of architectural cast stone for testing. The following test specimen were cut from the submitted sample: (3) - 2 x 2 x 2 inch absorption specimens, (3) - 2 x 2 x 2 inch compression specimens, and (3) - 3 x 4 x 16 inch freeze-thaw durability specimens. The results of these tests are summarized above, with individual results listed below.

Absorption Specimens

*Absorption values are determined in accordance with *Method A (Cold Water Test)* as outlined in ASTM C1195-03(2011).

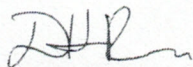
Age of Specimen at Start of Testing: 27 days	Avg Width in.	Avg Height in.	Avg Length in.	Received Wt, W _R lb	Saturated Surface-Dry Wt, W _S lb	Oven-Dry Wt, W _D lb	Absorption %
Unit #1a	2.03	2.03	1.98	299.9	303.0	290.8	4.2
Unit #2a	2.03	2.03	2.03	311.2	314.7	301.3	4.4
Unit #3a	2.03	2.01	1.97	295.1	298.5	286.2	4.3
Average	2.03	2.02	2.00	302.1	305.4	292.8	4.3

Compression Specimens

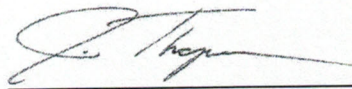
*Compressive strength values are determined in accordance with ASTM C1194-03(2011).

Age of Specimen: 28 days	Avg Width in.	Avg Height in.	Avg Length in.	Received Wt, W _R lb	Maximum Compressive Load lb	Tested Compressive Strength psi
Unit #1b	2.00	2.04	1.99	304.9	37650	9460
Unit #2b	2.00	2.02	2.02	304.5	41410	10280
Unit #3b	2.02	2.05	2.05	313.0	39620	9580
Average	2.00	2.04	2.02	307.5	39560	9770

Comments: 1) These units comply with the compressive strength and cold water absorption requirements of ASTM C1364-17.



Douglas H. Ross
Manager, Research and Development Laboratory



Jason J. Thompson
Vice President of Engineering

ASTM C666/C666M-15 Test Report
Standard Test Method for Resistance of
Concrete to Rapid Freezing and Thawing

Job No.: 18-246B
Report Date: 7/6/2018

Client: Superior Precast Products
Address: 1950 Ravine Road
Kalamazoo, MI 49004

Testing Agency: National Concrete Masonry Association
Research and Development Laboratory
Address: 13750 Sunrise Valley Drive
Herndon, VA 20171-4662

Project Identification: Verbal-Julie

Sampling Party: Cast Stone Institute

Unit Specification: ASTM C1364-17

Unit Designation/Description:
Architectural Cast Stone

Date Samples Received: 2/2/2018
Date of Casting: 1/11/2018

Mark: 'Color 102'

Date Testing Began: 3/23/2018

Age of Specimen
at Start of Testing: 71 days

Test Specimen Dimensions: 3 x 4 x 16 in.
Specimen Sample Location: Bottom molded horizontal surface of the test sample

The client delivered one 5 x 18 x 18 inch sample piece of architectural cast stone for testing. (3) - 3 x 4 x 16 inch freeze-thaw durability specimens were extracted for testing. Specimens were tested in accordance with Procedure A, outlined in ASTM C666/C666M-15. Reported values of cumulative percent weight loss are provided as modified by ASTM C1364-17.

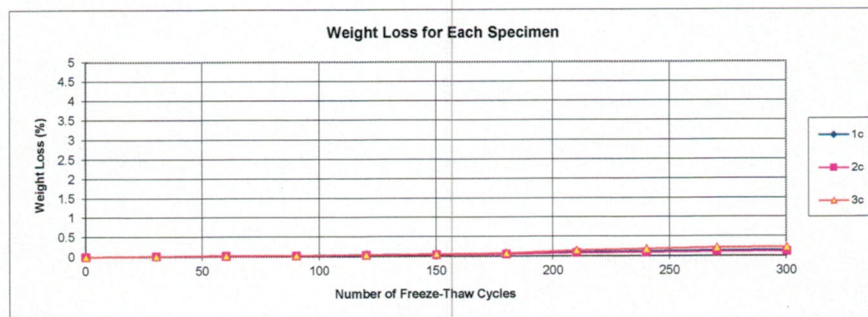
Test Media: WATER

Unit No.	Received Weight, (g)	Calculated Oven-Dry Initial Wt. (g)
1c	7070.8	6899.5
2c	7254.4	7074.6
3c	7109.5	6918.7

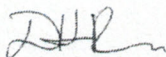
Note: Initial weight calculated as sum of final oven-dry weight of specimen plus oven-dry weight of all collected residue.

		Accumulative Residue Weight (g)										
Unit No.	Cycle No.:	0	30	60	90	120	150	180	210	240	270	300
1c		0.0	1.0	1.6	2.3	3.4	4.2	5.4	7.7	9.1	10.1	10.7
2c		0.0	0.8	1.2	1.6	2.3	2.9	3.9	6.2	7.1	8.1	8.6
3c		0.0	1.4	1.9	2.3	2.9	4.5	5.7	10.6	12.8	14.8	15.7

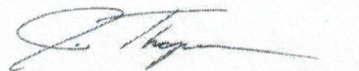
		Cumulative Percent Mass Loss (%)										
Unit No.	Cycle No.:	0	30	60	90	120	150	180	210	240	270	300
1c		0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2
2c		0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
3c		0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2



Comments: 1) These units comply with freeze thaw durability requirement of ASTM C1364-17 for architectural cast stone. That criterion requires that the cumulative percent mass loss (CPWL) is less that 5% after 300 cycles of freezing and thawing.



Douglas H. Ross
Manager, Research and Development Laboratory



Jason J. Thompson
Vice President of Engineering

Standard Test Method for Linear Drying Shrinkage of Concrete Masonry Units ASTM C 426

Date: March 12, 2018

Project Number: B1801091

Client:

Julie Dintaman
Superior Precast Products, Inc.
1950 Ravine Road
Kalamazoo, MI 49004

Project Description:

Cast Stone Testing
Linear Shrinkage

Sample Data

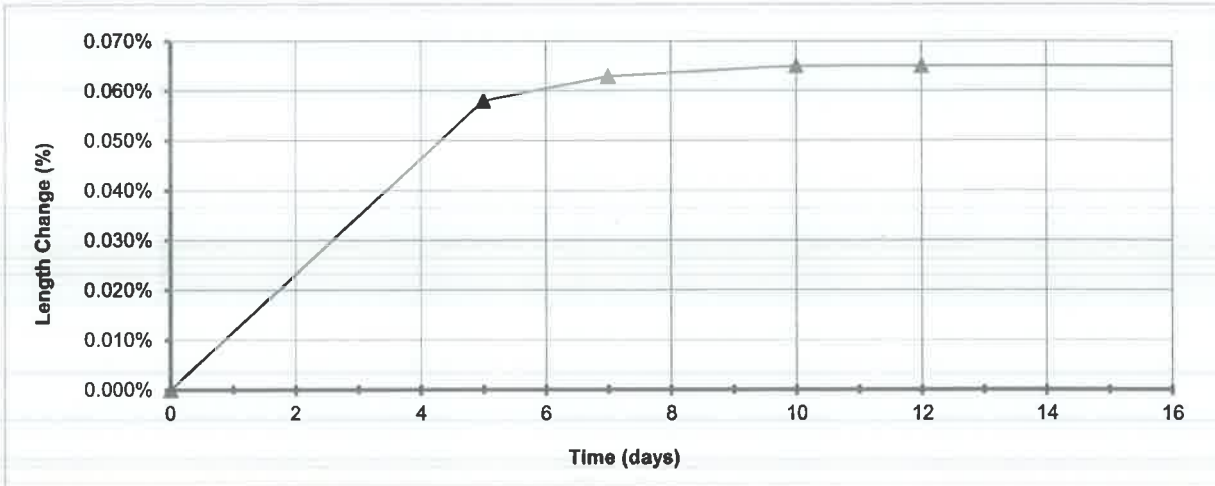
Set Number: 1
Number of Samples: 3
Type of Unit: Cast Stone
Supplier: Superior Precast Products, Inc.
Age of Samples: 43

Date Cast: 1/11/2018
Date Received: 2/5/2018
Date Immersed: 2/23/2018
Sampled By: Producer
Size of Sample: 3 x 3 x 10

Linear Shrinkage Analysis

Date Measured	Days out of Bath	Length Change - Cumulative			
		1A	1B	1C	Average
2/23/18	0	0.000%	0.000%	0.000%	0.000%
2/28/18	5	0.054%	0.070%	0.051%	0.058%
3/2/18	7	0.060%	0.074%	0.055%	0.063%
3/5/18	10	0.057%	0.074%	0.062%	0.065%
3/7/18	12	0.057%	0.074%	0.062%	0.065%
3/9/18	14	0.057%	0.074%	0.062%	0.065%
3/12/18	17	0.057%	0.074%	0.062%	0.065%

Moisture Loss - Per Cycle			
1A	1B	1C	Average
3.300%	3.709%	3.420%	3.476%
0.157%	0.169%	0.161%	0.162%
0.056%	0.079%	0.061%	0.065%
0.028%	0.051%	0.022%	0.034%
0.006%	0.023%	0.011%	0.013%
0.000%	0.000%	0.000%	0.000%
0.000%	0.000%	0.000%	0.000%



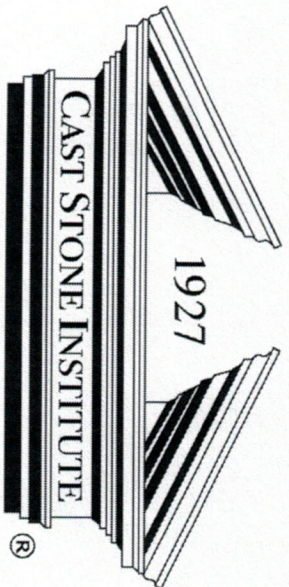
Remarks:

ASTM C 90 states that the linear shrinkage shall not exceed 0.065%. The samples meet the requirement.

AA/EOE

Reviewed By:

Jayson M. Kauffman
Project Manager



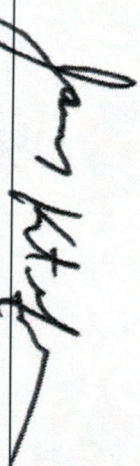
Certificate of Excellence

PRESENTED TO

Superior Precast Products Inc.

*This certifies that the company has met the strict criteria for plant certification
and adheres to the high standards for quality as set forth by the institute.*

Valid April 15, 2019 through April 14, 2020



J. Kent Grubaugh, President

Safety Data Sheet Portland Cement

Section 1. Identification

GHS product identifier:	Portland Cement
Chemical name:	Calcium compounds, calcium silicate compounds, and other calcium compounds containing iron and aluminum make up the majority of this product.
Other means of identification:	Cement, ASTM Type I, II, III, V, Portland Limestone Cement, Hydraulic Cement, CSA Type GU, GUb, GUL, MS, MH, MHL, HE, HEL, LH, LHL, HS
Relevant identified uses of the substance or mixture and uses advised against:	Building materials, construction, a basic ingredient in concrete.
Supplier's details:	Lehigh White Cement Company 7660 Imperial Way, Allentown, PA 18195 (610) 366-4600
Emergency telephone number (24 hours):	CHEMTREC: (800) 424-9300

Section 2. Hazards Identification

Overexposure to portland cement can cause serious, potentially irreversible skin or eye damage in the form of chemical (caustic) burns, including third degree burns. The same serious injury can occur if wet or moist skin has prolonged contact exposure to dry portland cement.

OSHA/HCS status:	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture:	SKIN CORROSION/IRRITATION – Category 1 SERIOUS EYE DAMAGE/EYE IRRITATION – Category 1 SKIN SENSITIZATION – Category 1 CARCINOGENICITY/INHALATION – Category 1A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) [Respiratory tract irritation] – Category 3

GHS label elements

Hazard pictograms:



Signal word:	Danger
Hazard statements:	Causes severe skin burns and eye damage. May cause an allergic skin reaction. May cause respiratory irritation. May cause cancer.

Precautionary statements:

Prevention:	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust. Use outdoors in a well ventilated area. Wash any exposed body parts thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Contaminated clothing must not be allowed out of the workplace. If exposed or concerned: Immediately get medical advice/attention if you feel unwell or irritation or rash occurs. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If in eyes: Rinse continuously with water for several minutes. Remove contact lenses, if present and easy to do. If inhaled: Remove person to fresh air and keep comfortable for breathing. If swallowed: Rinse mouth. Do not induce vomiting.
Response:	Restrict or control access to stockpile areas (store locked up). Engulfment hazard: To prevent burial or suffocation, do not enter a confined space, such as a silo, bulk truck or other storage container or vessel that stores or contains cement without an effective procedure for assuring safety. Store in a well ventilated area. Keep container tightly closed.
Storage:	Dispose of contents/container in accordance with local/regional/national/international regulations.
Disposal:	

Hazards not otherwise classified (HNOC): None known

Supplemental Information: Respirable Crystalline Silica (RCS) may cause cancer. Repeated inhalation of respirable crystalline silica (quartz) may cause lung cancer according to IARC and NTP; ACGIH states that it is a suspected cause of cancer. Other forms of RCS (e.g., tridymite and cristobalite) may also be present or formed under certain industrial processes.

Section 3. Composition/information on ingredients

Substance/mixture: Mixture

Chemical Name: Calcium compounds, calcium silicate compounds, and other calcium compounds containing iron and aluminum make up the majority of this product.

CAS number/other identifiers

Ingredient name	%	CAS number
Portland Cement	100%	65997-15-1
The structure of Portland cement may contain the following in some concentration ranges:		
Calcium oxide	A-B	1305-78-8
Quartz	C-D	14808-60-7
Hexavalent chromium*	E-F	18450-29-9
Portland cement also contains gypsum, limestone and magnesium oxide in various concentrations. However, because these components are not classifiable as a hazard under Title 29 Code of Federal Regulations 1910.1200, they are not required to be listed in this section.		
Gypsum	G-H	13397-24-5
Limestone	I-J	1317-65-3
Magnesium oxide	K-L	1309-48-4

Any concentration shown as a range is to protect confidentiality or is due to process variation.

*Hexavalent chromium is included due to dermal sensitivity associated with the component.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye Contact: Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Chemical burns must be treated promptly by a physician.

Inhalation: Seek medical help if coughing or other symptoms persist. Inhalation of large amounts of portland cement requires immediate medical attention. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If the individual is not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in a recovery position and get medical attention immediately. Maintain an open airway.

Skin Contact: Get medical attention immediately. Heavy exposure to portland cement dust, wet concrete or associated water requires prompt attention. Quickly remove contaminated clothing, shoes, and leather goods such as watchbands and belts. Quickly and gently blot or brush away excess portland cement. Immediately wash thoroughly with lukewarm, gently flowing water and non-abrasive pH natural soap. Seek medical attention for rashes, burns, irritation, dermatitis and prolonged unprotected exposure to wet cement, cement mixtures or liquids from wet cement. Burns should be treated as caustic burns. Portland cement causes skin burns with little warning. Discomfort or pain cannot be relied upon to alert a person to a serious injury. You may not feel pain or the severity of the burn until hours after the exposure. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure.

Ingestion: Get medical attention immediately. Call a poison center or physician. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING unless directed to do so by medical personnel. Remove victim to fresh air and keep at rest in a

position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Have victim drink 60 to 240 mL (2 to 8 oz.) of water. Stop giving water if the exposed person feels sick as vomiting may be dangerous. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.

Most important symptoms/effects, acute and delayed potential acute health effects

Eye contact:	Causes serious eye damage.
Inhalation:	May cause respiratory irritation.
Skin contact:	Causes severe burns. May cause an allergic skin reaction.
Ingestion:	May cause burns to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact:	Adverse symptoms may include the following: pain, watering and redness.
Inhalation:	Adverse symptoms may include the following: respiratory tract irritation and coughing.
Skin contact:	Adverse symptoms may include the following: pain or irritation, redness and blistering may occur, skin burns, ulceration and necrosis may occur.
Ingestion:	Adverse symptoms may include the following: stomach pains.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician:	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments:	Not applicable.
Protection of first-aiders:	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media:	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media:	Do not use water jet or water-based fire extinguishers.
Specific hazards arising from the chemical:	No specific fire or explosion hazard.
Hazardous thermal decomposition Products:	Decomposition products may include the following materials: carbon dioxide, carbon monoxide, sulfur oxides and metal oxide/oxides.
Special protective actions for fire-fighters:	Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
Special protective equipment for fire-fighters:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:	No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders:	For personal protective clothing requirements, please see Section 8.
Environmental precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Inform the relevant authorities if the product has entered the environment, including waterways, soil or air. Materials can enter waterways through drainage systems.

Methods and materials for containment and cleaning up

Small spill:	Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Place spilled material in a designated, labeled waste container. Dispose of waste material by using a licensed waste disposal contractor.
Large spill:	Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place dust in a closed, labeled waste container. Avoid creating dusty conditions and prevent wind dispersal. Large spills to waterways may be hazardous due to alkalinity of the product. Dispose of waste material using a licensed waste disposal contractor. Note: see section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures:	Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure by obtaining and following special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe dust. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material and keep the container tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene:	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
Conditions for safe storage, including any incompatibilities:	A key to using the product safely requires the user to recognize that portland cement reacts chemically with water to produce calcium hydroxide which can cause severe chemical burns. Every attempt should be made to avoid skin and eye contact with cement. Do not get portland cement inside boots, shoes or gloves. Do not allow wet, saturated clothing to remain against the skin. Promptly remove clothing and shoes that are dusty or wet with cement mixtures. Launder/clean clothing and shoes before reuse. Do not enter a confined space that stores or contains portland cement unless appropriate procedures and protection are available. Portland cement can build up or adhere to the walls of a confined space and then release or fall suddenly (engulfment).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Cement, portland, chemicals	ACGIH TLV (United States, 3/2012) TWA: 1 mg/m ³ 8hours. Form: Respirable fraction
	NIOSH REL (United States, 6/2009) TWA: 5 mg/m ³ 10 hours. Form: Respirable fraction TWA: 10 mg/m ³ 10 hours. Form: Total
	OSHA PEL (United States, 6/2010) TWA: 5mg/m ³ . 8 hours. Form: Respirable fraction TWA: 15 mg/m ³ . 8 hours. Form: Total dust

Calcium oxide	<p>ACGIH TLV (United States, 3/2012) TWA: 2 mg/m³ 8 hours</p> <p>NIOSH REL (United States, 6/2009) TWA: 2mg/m³ 10 hours.</p> <p>OSHA PEL (United States, 6/2010) TWA: 5 mg/m³ 8 hours.</p>
Limestone	<p>NIOSH REL (United States, 6/2009) TWA: 5 mg/m³ 10 hours. Form: Respirable fraction TWA: 10 mg/m³ 10 hours. Form: Total</p> <p>OSHA PEL (United States, 6/2010) TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust</p>
Magnesium oxide	<p>ACGIH TLV (United States, 3/2012) TWA: 10 mg/m³ 8 hours. Form: Inhalable fraction</p> <p>OSHA PEL (United States, 6/2010) TWA: 15 mg/m³ 8 hours. Form: Total particulates</p>
Quartz	<p>ACGIH TLV (United States, 3/2012) TWA: 0.025 mg/m³ 8 hours. Form: Respirable fraction</p> <p>NIOSH REL (United States, 6/2009) TWA: 0.05 mg/m³ 10 hours. Form: Respirable dust</p> <p>OSHA PEL Z-3 (United States, 9/2005) TWA: 10 mg/m³ divided by % SiO₂ + 2: Respirable TWA: 30 mg/m³ divided by % SiO₂ + 2: Total</p>
Calcium sulfate (gypsum)	<p>ACGIH TLV (United States, 3/2012) TWA: 10 mg/m³ 8 hours. Form: Respirable fraction</p> <p>NIOSH REL (United States, 6/2009) TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 10 mg/m³ 8 hours. Form: Total dust</p> <p>OSHA PEL Z-1 (United States, 2/2006) TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust</p>

Appropriate engineering controls: Use only with adequate ventilation. If user operations generate dust, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Individual protection measures

Hygiene measures: Clean water should always be readily available for skin and (emergency) eye washing. Periodically wash areas contacted by portland cement with a pH neutral soap and clean, uncontaminated water. If clothing becomes saturated with portland cement, garments should be removed and replaced with clean, dry clothing.

Eye/face protection: To prevent eye contact, wear safety glasses with side shields, safety goggles or face shields when handling dust or wet cement. Wearing contact lenses when working with cement is not recommended.

Skin protection

Hand protection:	Use impervious, waterproof, abrasion and alkali-resistant gloves. Do not rely on barrier creams in place of impervious gloves. Do not get portland cement inside gloves.
Body protection:	Use impervious, waterproof, abrasion and alkali-resistant boots and protective long-sleeved and long-legged clothing to protect the skin from contact with wet portland cement. To reduce foot and ankle exposure, wear impervious boots that are high enough to prevent portland cement from getting inside them. Do not get portland cement inside boots, shoes, or gloves. Remove clothing and protective equipment that becomes saturated with cement and immediately wash exposed areas of the body.
Other skin protection:	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved. .
Respiratory protection:	Use properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product, and assigned protection factor of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical State:	Solid. [Powder]	Lower and Upper explosive flammable limits	Not applicable
Color:	Gray or white	Vapor pressure:	Not applicable
Odor:	Odorless	Vapor density:	Not applicable
Odor threshold:	Not available	Relative density:	2.3 to 3.1
pH:	>11.5 [Conc. (% w/w): 1%]	Solubility:	Slightly soluble in water
Melting point:	Not available	Solubility in water:	0.1 to 1%
Boiling point:	>1000°C (>1832°F)	Partition coefficient: n-octanol/water:	Not applicable
Flash point:	Not flammable. Not combustible	Auto-ignition temperature:	Not applicable
Burning time:	Not available	Decomposition temperature:	Not available
Burning rate:	Not available	SADT:	Not available
Evaporation Rate:	Not applicable	Viscosity:	Not applicable
Flammability (solid, gas):	Not applicable		

Section 10. Stability and reactivity

Reactivity:	Reacts slowly with water forming hydrated compounds, releasing heat and producing a strong alkaline solution until reaction is substantially complete.
Chemical Stability:	The product is stable.
Possibility of hazardous reactions:	Under normal circumstances of storage and use, hazardous reactions will not occur.
Conditions to avoid:	No specific data.
Incompatible materials:	Reactive or incompatible with the following materials: oxidizing materials, acids, aluminum and ammonium salt. Portland cement is highly alkaline and will react with acids to produce a violent, heat-generating reaction. Toxic gases or vapors may be given off depending on the acid involved. Reacts with acids, aluminum metals and ammonium salts. Aluminum powder and other alkali and alkaline earth elements will react in wet mortar or concrete, liberating hydrogen gas. Limestone ignites on contact with fluorine and is incompatible with acids, alum, ammonium salts, and magnesium. Silica reacts violently with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride yielding possible fire and/or explosions. Silicates dissolve readily in hydrofluoric acid producing a corrosive gas-silicon tetrafluoride.
Hazardous decomposition products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity:	Portland Cement LD50/LC50 = Not available
Irritation/Corrosion:	Skin: May cause skin irritation. May cause serious burns in the presence of moisture. Eyes: Causes serious eye damage. May cause burns in the presence of moisture.

Sensitization: **Respiratory:** May cause respiratory tract irritation.
Mutagenicity: May cause sensitization due to the potential presence of trace amounts of hexavalent chromium.
 There are no data available.

Carcinogenicity:
 Classification below:

Product/ingredient name	OSHA	IARC	ACGIH	NTP
Cement, portland, chemicals	-	-	A4	-
Quartz	-	1	A2	Known to be a human carcinogen.

Reproductive toxicity: There are no data available.
Teratogenicity: There are no data available.

Specific target organ toxicity (single exposure)

Name	Category	Route of Exposure	Target Organs
Calcium oxide	Category 3	Inhalation and skin contact	Respiratory tract irritation, skin irritation
Cement, portland, chemicals	Category 3	Inhalation and skin contact	Respiratory tract irritation, skin irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of Exposure	Target Organs
Quartz	Category 1	Inhalation	Respiratory tract and kidneys

Aspiration hazard: There are no data available.

Information on the likely routes of exposure

Potential acute health effects:
Eye contact: Causes serious eye damage.
Inhalation: May cause respiratory irritation.
Skin contact: Causes severe burns. May cause an allergic skin reaction.
Ingestion: May cause burns to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics:
Eye contact: Adverse symptoms may include the following: pain, watering, redness.
Inhalation: Adverse symptoms may include the following: respiratory tract irritation, coughing
Skin contact: Adverse symptoms may include the following: pain or irritation, redness, blistering may occur, skin burns, ulcerations and necrosis may occur
Ingestion: Adverse symptoms may include the following: stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure:
Short term exposure
 Potential immediate effects: No known significant effects or critical hazards.
 Potential delayed effects: No known significant effects or critical hazards.

Long term exposure
 Potential immediate effects: No known significant effects or critical hazards.
 Potential delayed effects: No known significant effects or critical hazards.

Potential chronic health effects:
General: Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation. If sensitized to hexavalent chromium, a severe allergic dermal reaction may occur when subsequently exposed to very low levels.

Carcinogenicity: Portland cement is not classifiable as a human carcinogen. Crystalline silica is considered a hazard by inhalation. IARC has classified crystalline silica as a Group 1 substance, carcinogenic to humans. This classification is based on the findings of laboratory animal studies (inhalation and implantation) and epidemiology studies that were considered sufficient for carcinogenicity. Excessive exposure to crystalline silica can cause silicosis, a non-cancerous lung disease.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: No known significant effects or critical hazards.

Numerical measures of toxicity: Acute toxicity estimates: There are no data available.

Section 12. Ecological Information

Toxicity

Product/ingredient name	Result	Species	Exposure
Calcium oxide	Chronic NOEC 100 mg/L Fresh water	Fish-Oreochromis niloticus-Juvenile (Fledgling, Hatchling, Weanling)	46 days

Persistence and degradability: There are not data available.
Bioaccumulative potential: There are not data available.
Mobility in soil: Soil/water partition coefficient (Koc): Not available.
Other adverse effects: No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Untreated waste should not be released to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe manner. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff, and contact with soil, waterways, drains and sewers.

Section 14. Transportation information

	DOT Classification	IMDG	IATA
UN number	Not regulated	Not regulated	Not regulated
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	None	None	None
Additional information	-	-	-

Special precautions for user: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
 Not available.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:

Section 15. Regulatory Information

TSCA 6 final risk management: Chromium, ion (Cr6+)

United States inventory (TSCA 8b): Cements are considered to be statutory mixtures under TSCA. CAS 65997-15-1 is included on the TSCA inventory.

CERCLA: This product is not listed as a CERCLA substance

Clean Air Act Section 112 (b): Hazardous Air Pollutants (HAPs) – Not listed

Clean Air Act Section 602: Class I Substances - Not listed

Clean Air Act Section 602: Class II Substances - Not listed

DEA List I Chemicals: (Precursor Chemicals) – Not listed

DEA List II Chemicals: (Essential Chemicals) – Not listed

SARA 311/312

Classification: Immediate (acute) health hazard
Delayed (chronic) health hazard

Composition/information on ingredients

Name	%	Fire Hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Calcium oxide	A-B	No	No	No	Yes	No
Quartz	>0.1	No	No	No	No	Yes
Chromium, ion (Cr6+)	<0.1	No	No	No	Yes	Yes

SARA 313

	Product name	CAS number	%
Form R-Report requirements	Chromium, ion (Cr6+)	8540-29-9	<0.1

State regulations

Massachusetts:

The following components are listed: cement, portland, chemicals, limestone

New York:

None of the components are listed.


New Jersey:

The following components are listed: cement, portland, chemicals, gypsum, limestone

Pennsylvania:

The following components are listed: cement, portland, chemicals, gypsum, limestone

California Prop. 65

 **WARNING:** This product can expose you to chemicals including Lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Quartz	Yes	No	No	No
Chromium, ion (Cr6+)	Yes	Yes	0.001µg/day (inhalation)	8.2 micrograms/day (ingestion)

International regulations

International lists: **Canadian Domestic Substances List (DSL):** Portland cement is included on the DSL.
Mexico Inventory (INSQ): All components are listed or exempted.

Section 16. Other Information

Date of issue: 08/21/2018

Version: 08/21/2018

Revised Section(s): N/Ap

Notice to reader

While the information provided in this safety data sheet is believed to provide a useful summary of the hazards of portland cement as it is commonly used, the sheet cannot anticipate and provide all of the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product. In particular, the data furnished in this sheet do not address hazards that may be posed by other materials mixed with portland cement to produce portland cement products. Users should review other relevant material safety data sheets before working with this portland cement or working on portland cement products, for example, portland cement concrete.

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Abbreviations

ACGIH — American Conference of Governmental Industrial Hygienists
CAS — Chemical Abstract Service
CERCLA — Comprehensive Emergency Response and Comprehensive Liability Act
CFR — Code of Federal Regulations
DOT — Department of Transportation
GHS — Globally Harmonized System
HEPA — High Efficiency Particulate Air
IATA — International Air Transport Association
IARC — International Agency for Research on Cancer
IMDG — International Maritime Dangerous Goods
NIOSH — National Institute of Occupational Safety and Health
NOEC — No Observed Effect Concentration
NTP — National Toxicology Program
OSHA — Occupational Safety and Health Administration
PEL — Permissible Exposure Limit
REL — Recommended Exposure Limit
RQ — Reportable Quantity
SARA — Superfund Amendments and Reauthorization Act
SDS — Safety Data Sheet
TLV — Threshold Limit Value
TPQ — Threshold Planning Quantity
TSCA — Toxic Substances Control Act
TWA — Time-Weighted Average
UN — United Nations

Safety Data Sheet

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Version Number 1.1

Reviewed on 03/02/2016

1 Identification

Product identifier

Trade name: OPTEC EC 912

SDS ID Number: 1422B

Relevant identified uses of the substance or mixture, and uses advised against
Specialty construction product. Not intended for other uses

Details of the supplier of the safety data sheet

Manufacturer/Supplier:

GCP Applied Technologies
62 Whittemore Avenue
Cambridge, MA 02140 USA

GCP Canada, Inc.
294 Clements Road W.
Ajax, Ontario L1S 3C6 Canada

Information department:

Environmental Health & Safety
USA: +1-617-876-1400 (24 hours)
+1-800-354-5414 (8AM - 5PM) Not functional within Massachusetts
CAN: 1-905-683-8561 (24 hours)

Transport Emergency: Chemtrec +1-800-424-9300 (24 hours)

2 Hazard(s) identification

Classification of the substance or mixture

Causes skin irritation.
Causes serious eye damage.

Label elements:

Hazard pictograms



GHS05

Danger

Hazard statements

Causes skin irritation.
Causes serious eye damage.

Precautionary statements

Wash thoroughly after handling.
Wear eye protection / face protection.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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IF ON SKIN: Wash with plenty of water.
 If skin irritation occurs: Get medical advice/attention.
 Immediately call a POISON CENTER/doctor.

NFPA ratings (scale 0 - 4)

Health = 2
 Fire = 2
 Reactivity = 0

HMIS-ratings (scale 0 - 4)

Health = 2
 Flammability = 2
 Reactivity = 0

Other hazards**Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.**3 Composition/information on ingredients****Chemical characterization: Mixtures****Description:** Mixture of the substances listed below with additional nonhazardous ingredients.**Hazardous components:**

107-41-5	2-methylpentane-2,4-diol	50-100%
2943-75-1	Triethoxyoctylsilane	30-50%
127087-87-0	Poly(oxy-1,2-ethanediyl),alpha-(4-nonylphenyl)-omega-hydroxy-,branched	1.0-2.0%

Additional information: For the wording of the listed hazard phrases refer to section 16.**4 First-aid measures****Description of first aid measures****General information:** Get medical advice/attention if you feel unwell.**After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

After skin contact:

Immediately wash contaminated skin with soap or mild detergent and water. If this chemical soaks clothing, immediately remove clothing and wash skin.

After eye contact:

Rinse opened eye for several minutes under running water.

Seek immediate medical advice.

After swallowing:

Wash out mouth with water

Do not induce vomiting; immediately call for medical help.

Never give anything by mouth to an unconscious person.

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Information for doctor:**Most important symptoms and effects, both acute and delayed** Irritating to eyes.**Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

5 Fire-fighting measures**Special hazards arising from the substance or mixture** No further relevant information available.**Additional information** Collect contaminated fire fighting water separately. It must not enter the sewage system.**6 Accidental release measures****Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Methods and material for containment and cleaning up:

Contain and/or absorb spill with inert material (i.e. sand, vermiculite) then place in a suitable container.

Sweep up spilled product into receptacles.

Dispose contaminated material as waste according to section 13 of the SDS.

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage**Handling:****Precautions for safe handling**

Open and handle receptacle with care.

Prevent formation of aerosols.

Avoid contact with eyes, skin and clothing.

Do not take internally.

Practice good personal hygiene to avoid ingestion.

Use only with adequate ventilation.

Wash clothing before reuse.

FOR PROFESSIONAL USE ONLY. KEEP OUT OF CHILDREN'S REACH.

Avoid contact with skin.

Avoid contact with eyes.

Information about protection against explosions and fires: No special measures required.**Conditions for safe storage, including any incompatibilities****Storage:****Information about storage in one common storage facility:** No special measures required.

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Further information about storage conditions: Keep receptacle tightly sealed.

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Additional information about design of technical systems: No further data; see item 7.

Control parameters**Components with limit values that require monitoring at the workplace:****107-41-5 2-methylpentane-2,4-diol**REL (USA) Ceiling limit value: 125 mg/m³, 25 ppmTLV (USA) Ceiling limit value: 121 mg/m³, 25 ppm

Additional information: The lists that were valid during the creation were used as basis.

Exposure controls**Personal protective equipment:****General protective and hygienic measures:**

Avoid contact with the eyes and skin.

The usual precautionary measures for handling chemicals should be followed.

Breathing equipment:

Respiratory protection is not normally required. However, a chemical cartridge respirator with organic vapor cartridge and a prefilter for dusts/mists is required at or above the applicable exposure limits (consult exposure guidelines). If no limits exist, use an approved respirator whenever a vapor or mist is generated or if respiratory irritation occurs. Supplied air respirator (SCBA) is required at exposure levels above the capabilities of a chemical cartridge respirator.

Protection of hands:

Gloves should be worn to prevent skin contact and should be impermeable and resistant to the product. Rubber or other impervious gloves should be worn to prevent skin contact.

Material of gloves

Gloves should be worn to prevent skin contact and should be impermeable and resistant to the product.

Eye protection:

Safety glasses with side shield protection.

Safety glasses with side shields should be worn to prevent contact due to splashing. Under high vapor mist concentrations, tightly sealed goggles should be worn.



A face shield should also be worn if there is potential exposure to splash or spray.

Body protection:

Protective work clothing

Use personal protective equipment as required.

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Take off contaminated clothing.

* **9 Physical and chemical properties****Information on basic physical and chemical properties****General Information****Appearance:**

Form:	Liquid
Color:	According to product specification
Odor:	Characteristic
Odor threshold:	Not determined.

pH-value (~): Not determined.

Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
Flash point:	Not applicable.

Flammability (solid, gaseous): Not applicable.**Decomposition temperature:** Not determined.**Auto igniting:** Product is not selfigniting.**Danger of explosion:** Product does not present an explosion hazard.**Explosion limits:**

Lower:	Not determined.
Upper:	Not determined.
VOC Content (max):	Not determined.

Vapor pressure: Not determined.**Density: (~) at 20 °C (68 °F)** 0.9 g/cm³ (7.511 lbs/gal)**Relative density** Not determined.**Vapor density** Not determined.**Evaporation rate** Not determined.**Solubility in / Miscibility with****Water:** Not miscible or difficult to mix.**Partition coefficient (n-octanol/water):** Not determined.**Viscosity:**

Dynamic:	Not determined.
Kinematic:	Not determined.
Molecular weight	Not applicable.

Other information

No further relevant information available.

* **10 Stability and reactivity****Reactivity** Stable under normal conditions.**Chemical stability****Thermal decomposition:** No decomposition if used according to specifications.**Conditions to avoid** No further relevant information available.**Incompatible materials:** No further relevant information available.

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Hazardous decomposition products: Carbon monoxide and carbon dioxide**Additional information:** See section 7 for information on handling, storage and conditions to be avoided.**11 Toxicological information****Information on toxicological effects****Acute toxicity:****Primary irritant effect:****on the skin:** May cause sensitization by skin contact.**on the eye:** Causes serious eye damage.**inhalation:** No irritating effect expected**Ingestion:****Additional toxicological information:****Carcinogenic categories****IARC (International Agency for Research on Cancer) Human Carcinogenicity:**
Group 1- Positive, Group 2A- Probable, Group 2B- Possible, Group 3- Not Classifiable

None of the ingredients is listed.

NTP (National Toxicology Program)**K–Known to be carcinogenic, R–May reasonably be anticipated to be carcinogenic**

None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information**Toxicity****Aquatic toxicity:** No further relevant information available.**Persistence and degradability** No further relevant information available.**Behavior in environmental systems:****Bioaccumulative potential** No further relevant information available.**Mobility in soil** No further relevant information available.**Additional ecological information:****General notes:** Not known to be hazardous to water.**Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.**Other adverse effects** No further relevant information available.

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13 Disposal considerations**Waste treatment methods** Comply with Federal, State and local regulations.**Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Uncleaned packagings:**Recommendation:** Disposal must be made according to official regulations.**14 Transport information****UN-Number**

DOT, ADR, ADN, IMDG, IATA Not applicable.

UN proper shipping name

DOT, ADN, IMDG, IATA Not applicable.

ADR Not applicable.

Transport hazard class(es)

DOT, ADR, ADN, IMDG, IATA Class Not applicable.

Packing group

DOT, ADR, IMDG, IATA Not applicable.

Environmental hazards:

Marine pollutant: No

Special precautions for user Not applicable.**Transport/Additional information:** Not classified as a dangerous good for transport by road, rail or air.**DOT****Remarks:** Not Regulated.**UN "Model Regulation":** Not applicable.**15 Regulatory information****SARA (Superfund Amendments and Reauthorization Act)****Section 302/304 (extremely hazardous substances):**

None of the ingredients is listed.

Section 313 Reportable Ingredients (Chemicals present below reporting threshold are exempt):

None of the ingredients is listed.

SARA Section 312/Tier I & II Hazard Categories:

Health Immediate (acute)	Yes
Health Delayed (chronic)	No
Flammable	No
Reactive	No
Pressure	No

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North America Chemical Inventory Status**TSCA (Toxic Substances Control Act - United States):**

All ingredients are listed or exempt from listing unless otherwise noted below.

CEPA (Canadian DSL):

All ingredients are listed or exempt from listing unless otherwise noted below.

California Proposition 65**Chemicals known to cause cancer:**

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

Carcinogenicity Categories**EPA (Environmental Protection Agency)**

None of the ingredients is listed.

**TLV-ACGIH (THE American Conference of Governmental Industrial Hygienists)
Human Carcinogen - A1 Confirmed, A2 Suspected, A3 Unknown Relevance, A4 Not Classifiable**

None of the ingredients is listed.

NIOSH-Cancer (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

Volatile Organic Compounds (VOC) reported per the Emission Standards.

If no g/L value is provided this product is not subject to above standard.

16 Other information

The data included herein are presented in accordance with various environment, health and safety regulations. It is the responsibility of a recipient of the data to remain currently informed on chemical hazard information, to design and update its own program and to comply with all national, federal, state and local laws and regulations applicable to safety, occupational health, right-to-know and environmental protection.

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