





LCA & MATERIAL HEALTH RESULTS & INTERPRETATION

HOW WE MAKE IT GREENER

SM Transparency Catalog ► Isolatek International Showroom ► CAFCO® 400 & 400 AC



CAFCO® 400 CAFCO 400 AC

The CAFCO® 400 series products are medium density, Wet Mix Spray-Applied Fire Resistive Materials designed to provide fire protection for structural steel where higher levels of physical abuse or traffic may be anticipated. CAFCO 400 series products are designed to provide protection in virtually any environment where a medium density material is specified.

The thermal performance advantages of CAFCO 400 series products result in reduced installed costs and provide industry leading physical performance and application efficiencies that are unsurpassed.



Performance dashboard



Features & functionality

CAFCO 400: Portland Cement based medium density product with Industry leading physical performance characteristics.

CAFCO 400 AC: Gypsum Plaster based formulation designed to increase productivity while maintaining robust physical performance characteristics.

Visit Isolatek for more product specifications:

CAFCO 400, CAFCO 400 AC

CSI MasterFormat® 07 81 00

CAFCO SFRM Guide Spec

For spec help, contact us or call 800-631-9600



Download all documents

Environment & materials

Improved by:

Tested to meet (CDPH) Standard Method v1.1 & EPA Method 24 for VOC's

Post-consumer recycled content used

Certifications, rating systems & disclosures:

Declare, Red List Free

Health Product Declaration

Cellulosic - ANSI/UL263 (ASTM E119) - Fire Tests of **Building Construction and Materials**

UL Classification Mark

See LCA, interpretation & rating systems

See materials, interpretation & rating systems







SM Transparency Report™ + Material Health Overview™

VERIFICATION

LCA

✓ NSE 3rd party reviewed

Transparency Report

3rd party verified

NSE

Material evaluation

Self-declared

Validity: 05/29/19 - 05/29/24 ISL - 12032018 - 004

This declaration was independently verified by NSF to ISO 21930:2007 and the ASTM PCR, and ISO 14025:2006.

NSF Certification, LLC

P.O Box 130140 789 N.Dixboro Road Ann Arbor, MI 48105, USA 734 769 8010



SUMMARY

Reference PCR

Regions; system boundaries

North America; Cradle to gate

Declared unit: 1,000kg

LCIA methodology: TRACI 2.1

LCA software; LCI database

SimaPro Analyst 8.5.2.0

Ecolnvent 3.1, 2.2

LCA conducted by

Sustainable Minds

LCA public version

Isolatek International 41 Furnace Street

Stanhope, NJ 07874

800 631 9600

LCA & material health results & interpretation

CAFCO® 400 & 400 AC

Life cycle assessment

Material health

Scope and summary



Application

CAFCO 400 Series are wet mix, medium density Spray-Applied Fire Resistive Materials (SFRM) designed to provide fire protection for structural steel in commercial and high rise construction. Its durable surface and Portland cement based formulation make CAFCO 400 well suited for applications in either unconditioned or conditioned areas.

Declared unit

1,000 kg of spray-applied fire resistive material, packaging included.

Manufacturing data

Reporting period: January 2017 – December 2017

Location: Stanhope, NJ; Houston, TX; San Bernardino, CA

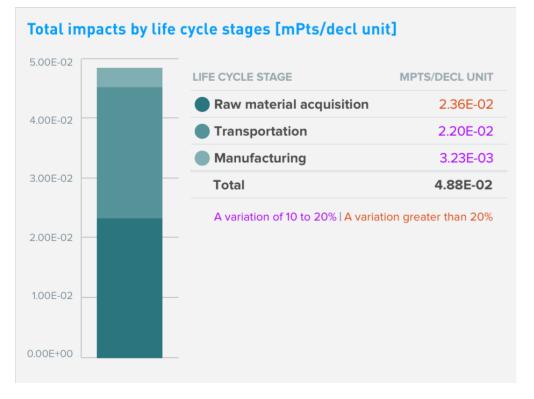
The amount of water required to be added during the mixing and application of 1,000 kg of dry product is 386 gallons. This water consumption will cause additional environmental impacts in the use phase, which is out of the scope of this assessment.

Default manufacturing scenarios

Production for the product series includes a Kraft paper bag for packaging. At the end of production, approximately 10% of vermiculite is sent to land fill when it does not "pop" in the manufacturing process. Vermiculite is used as a bulking agent in the production process.

Material composition greater than 1% by weight

PART	MATERIAL	AVG % WT.
Product Ingredient	Portland cement	53.5%
Product Ingredient	Vermiculite	28.6%
Product Ingredient	Calcium carbonate	6.1%
Product Ingredient	Cellulose	5.3%
Product Ingredient	Bentonite clay	5.6%
Packaging	Kraft paper bag	0.8%



What's causing the greatest impacts

All life cycle stages

The raw material acquisition stage dominates the results for all impact categories except for ecotoxicity, ozone depletion, and non-carcinogenics where the transportation stage dominates. Following these two stages, the lowest impacts come from the manufacturing stage.

Raw materials acquisition stage

The impact of the raw material acquisition stage is mostly due to the calcium sulfate and vermiculite. This is because of the high material weights used in manufacturing.

Sensitivity analysis

There are different raw material weights required for each product in the series. The different material weight directly affect the transportation, production, and end of life impacts.

Multi-product weighted average

Results represent the weighted average using production volumes for the products covered. Variations of specific products for differences of 10–20% against the average are indicated in purple; differences greater than 20% are indicated in red. A difference greater than 10% is considered significant.

How we're making it greener

Isolatek minimizes our waste portfolio by employing a variety of efforts, including the reuse of recycling of spent materials where feasible.

Isolatek offers the most thermally efficient materials on the market, meaning less material is needed to complete a project.

See how we make it greener

LCA results

LIFE CYCLE STAGE	RAW MATERIAL ACQUISITION	TRANSPORTATION	MANUFACTURING	TOTAL
Information modules: Included Excluded	A1 Raw Materials	A2 Transportation	A3 Manufacturing	A1-A3 Total
			TANGE PROPERTY TRACES OF THE PARTY OF THE PA	

Impacts per declared unit	2.36E-02 mPts	2.20E-02 mPts	3.23E-03 mPts	4.88E-02 mPts
Materials or processes contributing >20% to total impacts in each life cycle stage	CAFCO® 400 Series raw material production.	Truck and rail transportation used to transport raw materials to manufacturing site.	Energy and ancillary materials required to make the passive fire protection product.	Sum of the single point scores.

TRACI v2.1 results per declared unit

A variation of 10 to 20% | A variation greater than 20%

Ecological damage									
Impact category	Unit	Unit							
Acidification	kg SO ₂ eq	?	2.45E+00	9.19E-01	3.67E-01	3.74E+00			
Eutrophication	kg N eq	?	2.06E-01	1.27E-01	2.37E-02	3.57E-01			
Global warming (Embodied carbon)	kg CO ₂ eq	?	5.00E+02	2.33E+02	8.27E+01	8.16E+02			
Ozone depletion	kg CFC-11 eg	?	3.78E-05	5.59E-05	1.02E-05	1.04E-04			

TRANSPORTATION

MANUFACTURING

TOTAL

Human health damage

LIFE CYCLE STAGE

Impact category	Unit	Unit						
Carcinogenics	CTU _h	?	2.27E-06	1.82E-06	2.29E-07	4.33E-06		
Non-carcinogenics	CTU _h	?	3.55E-05	4.89E-05	1.76E-06	8.62E-05		
Respiratory effects	kg PM _{2.5} eq	?	2.59E-01	1.58E-01	4.56E-02	4.63E-01		
Smog	kg O ₃ eq	?	3.70E+01	1.93E+01	3.58E+00	5.98E+01		

Additional environmental information

Impact category	Unit					
Ecotoxicity	CTU _e	3	1.64E+02	9.10E+02	1.18E+01	1.09E+03
Fossil fuel depletion	MJ, LHV	?	6.67E+02	4.70E+02	1.23E+02	1.26E+03

See the additional EPD content required by the ASTM Environment PCR on page 4 of the Transparency Report PDF.

RAW MATERIAL ACQUISITION

References

LCA Background Report

Isolatek Products LCA (public version), Isolatek 2019. SimaPro Analyst 8.5.2.0, EoInvent 3.1, 2.2 database.

PCR

ASTM PCR for Spray-Applied Fire Resistive Materials; Version 1.0, February 2022. PCR review conducted by Thomas Gloria, PhD (chair, t.gloria@industrial-ecology.com); Jeffrey Gould; and Karl Houser.

ISO 14025, "Sustainability in buildings and civil engineering works -- Core rules for environmental product declarations of construction products and

Independent external verification of the declaration and data, according to ISO 14025.

Download PDF SM Transparency Report/Material Health Overview, which includes the additional EPD content required by the ASTM Environment PCR.

"Transparency Reports™ / environmental product declarations enable purchasers and users to compare the potential environmental performance of products on a life cycle basis. They are designed to present information transparently to make the limitations of comparability more understandable. TRs/EPDs of products that conform to the same PCR and include the same life cycle stages, but are made by different manufacturers, may not sufficiently align to support direct comparisons. They therefore, cannot be used as comparative assertions unless the conditions defined in ISO 14025 Section 6.7.2. 'Requirements for Comparability' are satisfied." EPDs from different programs (using different PCR) may not be comparable. TRs/EPDs cannot be compared if they do not have the same functional unit, reference service life, and building service life.

Rating systems

The intent is to reward project teams for selecting products from manufacturers who have verified improved life-cycle environmental performance.

LEED BD+C: New Construction | v4 - LEED v4

Building product disclosure and optimization

Environmental product declarations

O Industry-wide (generic) EPD	½ product
Product-specific Type III EPD	1 product

LEED BD+C: New Construction | v4.1 - LEED v4.1

Building product disclosure and optimization

Environmental product declarations

Industry-wide (generic) EPD	1 product
✔ Product-specific Type III EPD	1½ product

Collaborative for High Performance Schools National Criteria **MW 7.1 – Environmental Product Declarations**

▼ Third-party certified type III EPD 2 points

Green Globes for New Construction and Sustainable Interiors Materials and resources

NC 3.5.1.2 Path B: Prescriptive Path for Building Core and Shell

C 3.5.2.2 and SI 4.1.2 Path B: Prescriptive Path for Interior Fit-outs

BREEAM New Construction 2018

Mat 02 - Environmental impacts from construction products

Environmental Product Declarations (EPD)

Industry average EPD .5 points **✓** Multi-product specific EPD .75 points

Product specific EPD 1 point

SM Transparency Report™ + Material Health Overview™

VERIFICATION LCA **✓** NSF. 3rd party reviewed

Transparency Report 3rd party verified

✓ NSF.

Material evaluation

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LCA conducted by

Sustainable Minds LCA public version

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1 PERFORMANCE DASHBOARD

LCA & material health results & interpretation

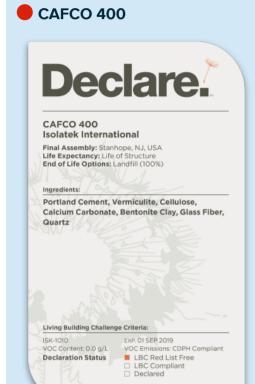
CAFCO® 400 & 400 AC

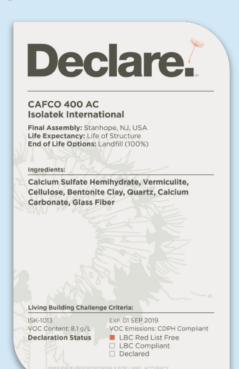
Material health

Assessment scope and results

Declare™ Inventory threshold: 100 ppm **Declare level:** The Declare product database and label LBC Red List Free ? are used to select products that meet the LBC Compliant ? LBC's stringent materials requirements, streamlining the materials specification Declared ? and certification process.

Click the label to see the full declaration.





INTERNATIONAL LIVING FUTURE INSTITUTE

CAFCO 400 AC

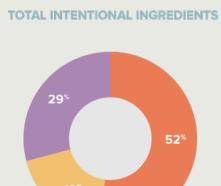
Health Product Declaration®

INTERNATIONAL LIVING FUTURE INSTITUTE

CAFCO 400

Inventory threshold: 100 ppm Full disclosure known hazards: Yes

Based on the selected content inventory threshold:





List Translator Benchmark Unknown 🕜 Benchmark 3 🕐 Benchmark 3 🕜

Benchmark 4 ? 🦱 No GS data available 🕜

Learn about the GreenScreen® List Translator

Total VOC Content

Material (g/l): 0.0 Regulatory (g/l): 50.0 Does the product contain exempt VOCs: No Are ultra-low VOC tints available: N/A

CAFCO 400 AC

Inventory threshold: 100 ppm

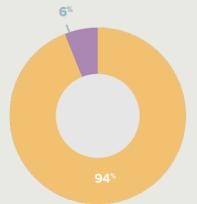
Full disclosure known hazards: Yes

Based on the selected content inventory threshold:









Total VOC Content

Material (g/l): 0.0 Regulatory (g/l): 50.0 Does the product contain exempt VOCs: No Are ultra-low VOC tints available: N/A

What's in this product and why

Declare level

The Declare program holds manufacturers accountable for their ingredients used in their products and allows the specifiers, architects and others the ability to better understand the products' environmental and sustainable qualities through transparency. Isolatek International takes pride in the fact that all of our Applied Fireproofing products are labeled as Declare™ Red List Free.

What's in the product and why

The ingredients used to manufacture Isolatek International's CAFCO 400 Series products provide effective, thermally efficient, robust and resilient Applied Fireproofing products.

The in-place products have superior thermal efficiencies, resulting in lower thicknesses to meet specified design criteria providing efficiencies in material and labor.

Our products' primary components are gypsum, which is a naturally occurring element or Portland cement binder, which is obtained and processed from common natural materials, such as limestone and clay. The trade off with the cement -based products compared to the naturally occurring gypsum counterparts is their functional ability to better withstand the exterior elements or other abuses during the construction and life cycle of the structures in which they are installed. Both primary component binder types have widespread availability which are sourced locally near our various production facilities.

What's been done in the design and manufacture in consideration of the potential human health and environmental impacts in the use

Isolatek International's CAFCO 400 Series products contain recycled cellulose which constitutes up to 10% recycled content of the material by weight. CAFCO 400 Series products are packaged in recyclable kraft paper bags and shipped on wood pallets that can be reused or recycled.

CAFCO 400 Series products are designed to provide required fire resistance ratings on structural steel members and designed to last the lifetime of a building when applied in accordance with the specified design criteria, Isolatek's written Application Instructions, properly maintained after application and not damaged or altered in any way after installation.

Where it goes at the end of its life

Isolatek International's Applied Fireproofing products are designed to provide the required fire resistance ratings on the structural steel members to last the lifetime of the building when applied in accordance with the specified design criteria, our written Application Instructions and are not damaged or altered in any way after their installation.

Although Isolatek's Applied Fireproofing products are designed to last the lifetime of the building, the end life of the product is generally the result of a rehabilitation, which may require removal and replacement of the Applied Fireproofing materials. The removal depends upon the degree of the rehabilitation. Otherwise, the end life of the material is based on the end life of the structure in its entirety. The material is then processed along with the remainder of the structure, primarily as landfill material.

How we're making it healthier

- Isolatek International is committed to legal compliance and ethical business practices in all of our operations.
- Isolatek's Vendors must act in accordance with the applicable statutory and international standards regarding environmental
- Isolatek's Vendors must minimize environmental pollution and make continuous improvements in environmental protection.
- Isolatek's Vendors must set up or use a reasonable environmental management system.
- In Isolatek's purchase arrangements, Vendors must observe all applicable laws of their country and international standards, including but not limited to laws and standards relating to the environment, as well as health and safety.

See how we make it greener

Evaluation Programs

Declare

Declare labels are issued to products disclosing ingredient inventory, sourcing and end of life options. Declare labels are based on the Manufacturers Guide to Declare, administered by the International Living Future Institute.

How it works

Material ingredients are inventoried and screened against the Living Building Challenge (LBC) Red List which represents the 'worst in class' materials, chemicals, and elements known to pose serious risks to human health and the greater ecosystem.

The Health Product Declaration®

The HPD Open Standard provides a consistent, and transparent format to accurately disclose the material contents and associated hazard classifications for a building product.

How it works

Material ingredients are screened and categorized according to the hazards that international governmental bodies and toxicology experts have associated with them, based on two listings:

- Authoritative lists maintained or recognized by government bodies
- Screening lists, which include chemicals that government bodies determined need further scrutiny, as well as chemical lists not recognized by any government body.

References

Declare

CAFCO® 400 AC

Manufacturer's Guide to Declare

A comprehensive guide providing information about the program, the assessment methodology, how to submit material data to obtain a Declare label and how they are used to meet the Health & Happiness and Materials Petals of the Living Building Challenge.

Health Product Declaration®

CAFCO® 400 AC

Health Product Declaration Open Standard v2.1

The standard provides guidance to accurately disclose the material contents of a building product using a standard, consistent, and transparent format.

Rating systems LEED BD+C: New Construction | v4 - LEED v4 Building product disclosure and optimization **Material Ingredients** Credit value options 1 product each ✓ 1. Reporting 2. Optimization 3. Supply Chain Optimization Living Building Challenge 3.0 **Materials petals imperatives** ✓ 10. Red List Free ○ 12. Responsible Industry ○ 13. Living Economy Sourcing **Well Building Standard® Air and Mind Features** Air, 26. Enhanced Material Safety Mind, 97. Material Transparency Mind, 98. Organizational Transparency Collaborative for High Performance Schools National Criteria MW 10.1 — Building Product Health Related Information Reporting Product Health Related Information Report 1 point



SM Transparency Report™ + Material Health Overview™

VERIFICATION

Material evaluation

Self-declared

CA

ISL - 05292019 - 004

The material health evaluation is self-declared and done in accordance with the HPD Open Standard 2.1

HPD Collaborative

401 Edgewater Place, Suite 600 Wakefield, MA 01880

www.npa-collabor

781.876.8871

The material health evaluation is selfdeclared and done in accordance with the Manufacturers Guide to Declare.

International Living Future Institute

501 East Madison St. Seattle, WA 98122

www.living-future.org

INTERNATIONAL LIVING FUTURE INSTITUTE"

Isolatek International

41 Furnace Street Stanhope, NJ 07874

800 631 9600

1 PERFORMANCE DASHBOARD

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How we make it greener

CAFCO® 400 & 400 AC

Collapse all

See LCA results by life cycle stage

RAW MATERIAL ACQUISITION



Reuse of recycled spent materials

Isolatek uses recycled cellulose in the production of the CAFCO® 400 Series products. CAFCO 400 contains up to 10% recycled cellulose.

Isolatek collaborates with vendors to provide neutral products that minimize environmental impact, conserves energy, reduces and diverts waste, and are sustainable.

These vendors, where possible, are strategically located in close proximity to our manufacturing facilities which minimized transportation costs.



MANUFACTURING



Regional Manufacturing

Isolatek makes a point to minimize energy in our plants, buildings and processes in order to conserve supplies, and minimize consumption of natural resources, especially non-renewable resources.

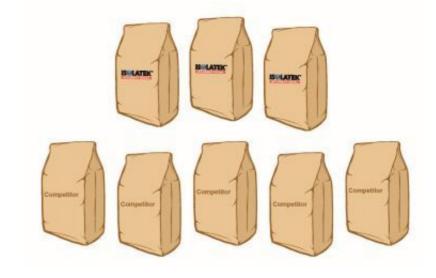


TRANSPORTATION



Optimized and recycled packaging

CAFCO 400 Series products are packaged in recyclable kraft paper bags and shipped on wood pallets that can be reused or recycled.



USE



Energy use optimization

Isolatek's materials also provide both NRC (Noise Reduction Coefficient) values and Thermal Resistance (R) values which allow for the reduction of the amount of energy needed for climate control, and reduce the need for additional materials required for soundproofing within the building envelope.

Extended set products are available that eliminates daily wash out, reducing clean water consumption and construction waste.

Reduced water use

Isolatek's materials are designed to use the least amount of water during the installation process, which results in less consumption of natural resources.





END OF LIFE



Durability

Although Isolatek's Applied Fireproofing products are designed to last the lifetime of the building, the end life of the product is generally the result of a rehabilitation, which may require removal and replacement of the Applied Fireproofing materials. The removal depends upon the degree of the rehabilitation. Otherwise, the end life of the material is based on the end life of the structure in its entirety. The material is then processed along with the remainder of the structure, primarily as landfill material.



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Ecolnvent 3.1, 2.2

LCA public version

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Additional EPD content required by: ASTM PCR Parts A and B for Spray-applied Fire-resistive Materials (SFRM)

CAFCO® 400 Series

Primary energy consumption, material resources consumption, and waste flows per declared unit

Parameter	Unit	A1	A2	А3	Total		
Primary energy consumption indicators							
Nonrenewable fossil	MJ, HHV	5.87E+03	3.66E+03	1.19E+03	1.07E+04		
Nonrenewable nuclear	MJ, HHV	3.27E+02	5.83E+01	1.47E+02	5.32E+02		
Renewable (solar, wind, hydroelectric, and geothermal)	MJ, HHV	1.72E+01	3.57E+00	1.42E+01	3.50E+01		
Renewable (biomass)	MJ, HHV	4.00E+02	2.17E+01	1.01E+01	4.32E+02		
Material resources consumption indicate	ors						
Renewable material resources	kg	2.25E+01	1.06E+00	4.97E-01	2.41E+01		
Nonrenewable material resources	kg	1.44E+03	2.90E+02	2.37E+01	1.75E+03		
Net fresh water	L	1.62E+04	2.63E+03	2.62E+03	2.14E+04		
Waste flows							
Non-hazardous waste generated	kg	0	0	1.14E+05	1.14E+05		
Hazardous waste generated	kg	0	0	0	0		

Numbers shown in purple have a variation of 10 to 20% Numbers shown in red have a variation greater than 20%