



Vitro Flat Glass Glazing Products Information on: Ingredient Disclosure; Compliance with EU RoHS Directive; REACH Regulations; Conflict Minerals Reporting; California Proposition 65; Buy America Regulation, Buy Clean California Act (BCCA) and Safety Data Sheets, (Material Safety Data Sheets)

The following information is provided as Vitro's response to customer requests for Ingredient Disclosure; Compliance with the European Union, (EU) Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, (RoHS) Directive; REACH regulations; Conflict Minerals reporting; California Proposition 65; Buy America Regulation; Buy Clean California Act (BCCA) and product / material Safety Data Sheets, (SDS) concerning Vitro Flat Glass Products as produced by Vitro.

Vitro now manufactures many different glass products that meet the diverse and demanding requirements of virtually every application that utilizes glass. These products include many different coated glass products, mirrored glass, various tinted substrates, ultra-clear, and clear glass.

Environmental, Health & Safety Policy

"Vitro will market, distribute and manufacture products globally in a responsible manner that protects employees, neighbors, customers and the environment. To meet this objective, the Vitro EHS Process, our management

system, is integrated into each of our strategic business units. Our policy incorporates the elements of Responsible Care® and Coatings Care® initiatives and emphasizes our commitment to continuous improvement and sustainability."

Ingredient Disclosure

Vitro Flat Glass receives requests from its customers to confirm details of the composition of the glass products that we supply.

The final composition, after melting, by weight percent of Vitro Industries Soda Lime Clear Float Glass is shown below.

Vitro Soda Lime Float Glass		
Weight Percent, %	Compound	Symbol
73 %	<i>Silicon Dioxide</i>	SiO ₂
14 %	<i>Sodium Oxide</i>	Na ₂ O
9 %	<i>Calcium Oxide</i>	CaO
3 %	<i>Magnesium Oxide</i>	MgO
1 %	<i>Trace elements such as, but not limited to: Salt cake - Na₂O + SO₃, Rouge - Fe₂O₃, Coal - C</i>	

Table 1. – Glass Composition



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Tinted glasses are very similar in composition to clear glass with adjustments to trace elements for coloring purposes and sometimes accompanied by minor changes to the other components where necessary for proper melting, such as with Vitro Solargray® Glass where CaO is adjusted up to 9.8% and MgO down to 2.8%.

These requests are often driven by legislation that prohibits the use of certain chemical substances in a particular application, or by the desire of the customer to eliminate certain substances from its product range, or to allow the customer to manage its product portfolio by understanding the full range of substances that it uses.

Vitro has prepared this document based upon its knowledge of Flat Glass products and information (such as Safety Data Sheets [SDSs]) provided to Vitro by its materials suppliers and in accordance with Vitro's understanding of the U.S. Occupational Safety & Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200) and Canada's Workplace Hazardous Materials Information System (WHMIS).

For Vitro products which are mixtures of chemicals that have not been toxicologically tested as a whole, the above regulations require the SDS to identify the specific

hazards of any hazardous component present in the mixture at 1% or greater and any carcinogen, teratogen, embryo toxin, reproductive toxin, respiratory tract sensitizer or mutagen present at 0.1% or greater (Call-outs). Additionally, Vitro identifies lead-containing materials if they are present in a product at 0.06% or greater or lower if required by legislation. (Call-out).

For instructions on how to obtain a SDS for a Vitro Architectural Glass product see the SDS section of this bulletin.

Compliance with EU RoHS Directive

The EU Directive 2011/65/EC "Restriction on the Use of Certain Hazardous Substances" (RoHS) and subsequent amendments up to and including 2015/863/EC requires all Member States (per Article 4(1) of the Directive) to ensure that materials and components of electrical and electronic equipment put on the market do not contain the following specific substances: lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBBs) or polybrominated diphenyl ethers (PBDEs), or the phthalates Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), Diisobutyl phthalate (DIBP).



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Schedule 1 EN WEEE 3113 (page 61) indicates that Vitro Architectural Glass' products are not within scope, therefore there are no reporting requirements.

As a responsible supplier and a service to our downstream customers, we have reviewed Vitro Flat Glass products with regard to the EU RoHS Directive and based on our knowledge of these products and the information (such as SDSs) provided to Vitro by its raw material suppliers, the Vitro Flat Glass Products listed in [Table 2](#) do not contain cadmium, hexavalent chromium, lead, mercury, polybrominated biphenyls (PBBs) polybrominated diphenyl ethers (PBDEs) or the listed phthalates at levels greater than the thresholds established by the EU Commission Directive 2015/863/EC.

REACH Regulation

Vitro is committed to meeting its legal obligations under "Registration, Evaluation and Authorization of Chemicals" (REACH) Regulation, as a manufacturer, importer and downstream user of chemical substances in the European market. The REACH regulation includes "articles". An article is defined as something of which the shape and design are more important than the chemical composition. The European Chemicals Agency (ECHA) has published guidance of these requirements available at:

<http://echa.europa.eu/support/guidance>

As glass is considered an article, Vitro has no registration or notification requirements in accordance with the following guidance from the ECHA.

Uncoated glass: According to EU Official Journal "Commission Regulation (EC) No. 987/2008, glass is a singular substance, rather than a mix of component materials. Chemical characteristics of batch materials, including risk to human health and the environment, are not comparable in properties when integrated into a glass matrix. The glass matrix is not a Substance of Very High Concern (SVHC). Manufacturers and importers are not obliged to communicate information on the glass matrix according to Article 33 (1) and Article 7 (2) et seq of the REACH Regulation.

Vitro products are not classified as dangerous according to Regulation (EC) No 1272/2008 and do not contain substances fulfilling the hazard class criteria set out in Annex I.



Architectural Glass

Vitro Flat Glass Glazing Products Information on: Ingredient Disclosure; Compliance with EU RoHS Directive; REACH Regulations; Conflict Minerals Reporting; California Proposition 65; Buy America Regulation, Buy Clean California Act (BCCA) and Safety Data Sheets, (Material Safety Data Sheets)

Coated and Mirrored glass: From [Table 2](#). Scenario III Partially Coated Article: “The concentration of the Candidate List substance in the (fully/partially) coated article is calculated over the total weight of the coated article, i.e., dividing the weight of the Candidate List substance in the coated article by the total weight of the article.”

None of the SVHCs contained within Annex XVII are present in Vitro Architectural Glass’ products or packaging in quantities equal to or above 0.1%.

See also: ECHA “Guidance on requirements for substances in articles June 2017 Version 4.0”

Conflict Minerals Reporting

Section 1502 of the 2012 Dodd-Frank Wall Street Reform and Consumer Protection Act added Section 13(p) to the Securities Exchange Act of 1934. This addition obligates the Security Exchange Commission to promulgate rules requiring SEC registrants whose manufactured products utilize conflict minerals that are necessary to the functionality or production of the product, to disclose annually whether any of those minerals originated in the Democratic Republic of the Congo or an adjoining country.

The use of tin is required in the production of Vitro float glass and coated glass products. A portion of our suppliers knowingly source this tin from ‘conflict-free’ smelters in countries covered by the regulation. In all cases we have received the necessary information from each supplier ensuring the materials are conflict free in accordance with Section 1502 of the 2012 Dodd-Frank Wall Street Reform and Consumer Protection Act. In addition, due diligence measures and corrective action procedures are in place to regularly confirm our suppliers are meeting Vitro’s expectations.

The latest Responsible Minerals Initiative (RMI) Conflict Minerals Reporting Template is available upon written request to Vitro Flat Glass Technical Services.

Vitro is aware of EU regulation 2017/821 of the European Parliament and of the European Council of May 17, 2017 laying down supply chain due diligence obligations for Union importers of tin, tantalum, and tungsten, their ores, and gold originating from conflict-affected and high-risk areas (CAHRA). Vitro will provide information about identified minerals/materials upon written request.



Architectural Glass

Vitro Flat Glass Glazing Products Information on: Ingredient Disclosure; Compliance with EU RoHS Directive; REACH Regulations; Conflict Minerals Reporting; California Proposition 65; Buy America Regulation, Buy Clean California Act (BCCA) and Safety Data Sheets, (Material Safety Data Sheets)

California Proposition 65

The “Safe Drinking Water and Toxic Enforcement Act of 1986”, better known as Proposition 65 (Prop 65), requires businesses to warn persons in California before exposing them to certain chemicals that can cause cancer, birth defects or other reproductive harm.

Businesses are required to provide a "clear and reasonable" warning before knowingly and intentionally exposing anyone to a listed chemical.

There are currently no Prop 65 listed chemicals in Vitro’s coated or uncoated glass products, including the separating powder used to prevent scratching. There may be existing stock that was produced prior to the October 2020 production change that would be labeled per the separating powder used for manufacture of the product previously.

PFAS Statement

“Perfluoroalkyl and Polyfluoroalkyl substances, known as PFAS, are a large family of human-made chemicals that are used to make a wide variety of consumer products. They are also known as “Forever Chemicals.” Vitro Architectural Glass products do NOT contain any PFAS. PFAS are listed as some of the banned substances on the Living Building Challenge watch

list. Upon request, Vitro can provide a letter which states that our products meet the criteria established in the Living Building Challenge (LBC) Red List of Materials v4.0-2022

(<https://www.vitroglazings.com/media/1r2bhj1h/vitro-red-list-compliance.pdf>).

Buy America Regulation

The Buy America requirements, set forth in 49 U.S.C. § 5323(j)(1) and 49 CFR § 661.1, et seq., with few exceptions, require that all steel, iron, and manufactured goods or products used in certain federally-funded projects be produced in the United States. For a manufactured product to be produced in the United States, the Code of Federal Regulations requires that (i) all of the manufacturing processes of the product take place in the United States, and (ii) all of the components of the product be of United States origin.

Based on our interpretation of the definitions of manufactured products and components, as defined within the Code of Federal Regulations, Vitro Architectural Glass products most likely would not be considered to be manufactured products or components of manufactured products. Rather, Vitro Architectural Glass products would more accurately be characterized as a subcomponent of a manufactured product.



Vitro Flat Glass Glazing Products Information on: Ingredient

Disclosure; Compliance with EU RoHS Directive; REACH Regulations; Conflict Minerals Reporting; California Proposition 65; Buy America Regulation, Buy Clean California Act (BCCA) and Safety Data Sheets, (Material Safety Data Sheets)

Before being incorporated into an end product at the final assembly location, Vitro Architectural Glass products undergo further processing by fabricators, glaziers, and/or other third-party entities. Because Vitro Architectural Glass products are subcomponents of the end product and the further processing of Vitro Architectural Glass products is outside of the control of Vitro Architectural Glass, we are unable to certify or provide a determination of compliance with the Buy America requirements for the end product. However, as a subcomponent, Vitro Architectural Glass products, in and of themselves, do not affect compliance with Buy America. Any final determination on Buy America compliance would likely need to be made by the fabricator, glazier, and/or third-party entity that further processed the Vitro Architectural Glass product.

Vitro Architectural Glass products are manufactured in either the United States or Mexico. To assure our customers that the Vitro Architectural glass products they wish to purchase are manufactured in the United States, Vitro Architectural Glass can provide origin information for its flat and coated glass products. If there are any questions related to the origin of the flat glass products supplied by Vitro Architectural Glass for your project, please consult with your Vitro Architectural Sales Account Manager or Customer Service Representative.

Buy Clean California Act

The Buy Clean California Act (BCCA), (aka Assembly Bill 262) addresses carbon emissions associated with the production of specific products including flat glass and requires the CA Department of General Services to establish a maximum acceptable benchmark for Global Warming Potential (GWP) for the covered products. For flat glass used in infrastructure projects in the state of California the BCCA requires that state agencies evaluate only products with Environmental Product Declarations (EPDs) and utilize products demonstrating a lower GWP than the product benchmark. On January 1, 2021, the California DGS published the maximum acceptable GWP for Flat Glass at 1.72 E+03 kg CO₂-eq (1,720 kg CO₂-eq).

The awarding authorities that must comply with the BCCA include: Department of Transportation, Department of Water Resources, Department of Parks and Recreation, Department of Corrections and Rehabilitation, Military Department, Department of General Services, Regents of the University of California, Trustees of the California State University, and state agencies granted authority to work on public works projects under Management Memo 18-01.

The BCCA requires an independently verified and registered EPD that reports a product's environmental impact over its life cycle.



Architectural Glass

Vitro Flat Glass Glazing Products Information on: Ingredient Disclosure; Compliance with EU RoHS Directive; REACH Regulations; Conflict Minerals Reporting; California Proposition 65; Buy America Regulation, Buy Clean California Act (BCCA) and Safety Data Sheets, (Material Safety Data Sheets)

Vitro Architectural Glass has two EPD's and both EPD's are Type III EPDs that are certified and registered by ASTM International (ASTM) as conforming to the requirements of ISO 14025. ASTM has determined that the Flat Glass Life Cycle Assessment, (LCA) information fulfills the requirements of ISO 14044 in accordance with the instructions listed in the Flat Glass Product Category Rules, (PCR).

The single largest contributor to the GWP of insulating glass units comes from the flat glass manufacturing with the flat glass GWP accounting for approximately 75% of the total GWP of the insulated glass units. Current studies¹ of embodied carbon of building materials show that exterior windows contribute less than 2% of the overall carbon impact of a building. This results in the glass embodied carbon contribution of a building to be estimated as less than 1.5%. Therefore, it is reasonable to use the GWP from the Vitro Flat Glass EPD to demonstrate compliance to the BCCA GWP requirement.

Vitro's Flat Glass products easily meet this published maximum acceptable GWP with a declared GWP of 1.37 E+03 kg CO₂-eq (1,370 kg CO₂-eq). Vitro's Flat Glass products are approximately 4% lower than the published industry-wide flat glass GWP of 1.43 E+03 kg CO₂-eq (1430 kg CO₂-eq) and more than 20% below the published BCCA GWP requirement of 1.72 E+03 kg CO₂-eq (1,720 kg CO₂-eq).

For further information on Vitro's commitment to the environment, Cradle2Cradle Certified products, and sustainability, please visit Vitro's Sustainability website at: <https://www.vitroglazings.com/design-resources/sustainability-resources-downloads/>

Safety Data Sheets

Vitro float glass products are considered to be "articles" as defined by OSHA 29 CFR 1910.1200 (and all global hazard communication regulations) and as such there are no specific SDS or labeling requirements for our products.

As a service to our customers Vitro provides SDS's for all of our soda lime float glass products. See Table 2 below.

SDS's are prepared with the intention that all hazardous components of a Vitro product, where hazardous is defined by the applicable regulations, are listed on the SDS if they are present in the product at or greater than their Call-out amount.

In addition, although not required, Vitro distributes Safety Data Sheets (SDS) to our Sungate[®] and Solarban[®] coated glass customers who perform edge deletion. These products contain a very small percentage of metals, and Vitro has determined that workers involved in the edge deletion process could potentially be



Architectural Glass

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exposed to metal dust. The OSHA Permissible Exposure Limit (PEL) for silver is 0.01 mg/m³ and the Ontario Occupational Exposure Limit, (OEL-2015) is 0.1mg/m³.

Consult the Sungate® and Solarban® Magnetic Sputtered Vapor Deposition, (MSVD) Coated Float Glass SDS (See Table 2 below) and Vitro Technical Document TD-141 for further information.

Please contact Vitro Flat Glass Technical Services at 412-820-8500 if you have additional questions regarding Vitro products.

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Table 2. - Vitro SDS Listing

SDS Title	Included Products	Product Code
Vitro Non-Coated Float Glass	Clear, Acuity™, Starphire®, Solarbronze®, Solargray®, Atlantica®, Solexia®, Graylite® II, Optigray®, Optiblue®, Azuria®, Pacifica®, Pavia™, Solarblue®, Solarphire® and Solarphire® PV.	01048
Non-Metal Based Offline Coated Float Glass	Solarphire® NaB, Solarphire® AR, Solarphire® 2XAR and Clarvista®	01573
Vitro Chemical Vapor Deposition (CVD) and Spray Pyrolysis Coated Float Glass	Solarphire® STCO, Solarphire® HTCO, Solarcool® Coated Substrates and Vistacool® Coated Substrates.	01049
Magnetic Sputtered Vapor Deposition (MSVD) Coated Float Glass	Sungate® 400, Sungate® 400VT, Sungate® 460, Sungate® 460VT, Solarban® 60, Solarban® 60VTII, Solarban® 67, Solarban® 67VT, Solarban® 70, Solarban® 70VT, Solarban® 72VT, Solarban® R77VT, Solarban® 90, Solarban® 90VT, Solarban® z50, Solarban® z50VT, Solarban® z75VT, Solarban® R100VT.	01050
Mirrored Float Glass	All thicknesses and substrates of Platia™	01051

All SDS documents can be obtained by visiting <https://www.vitroglazings.com/project-support/safety-data-sheets/>. Search menus are available on the page to select country and language for each SDS Title.



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HISTORY TABLE		
ITEM	DATE	DESCRIPTION
Original Publication	3/31/2006	TD-143
Revision #1 - 12	Multiple	See archived file for update descriptions.
Revision #13	8/6/2018	Added Prop 65 language. Update of compliance statements for REACH and RoHS. Revision date is the date of verification of compliance to EU RoHS, REACH, and Conflict Minerals regulations. Added Acuity, Pavia and Platia to SDS table.
Revision #14	1/28/2019	Updated the Vitro Logo and format
Revision #15	7/15/2020	Added Buy America Regulation language and updated links in SDS table (Table 2)
Revision #16	11/17/2020	Revised Prop 65 language to reflect compliance of new separating powder.
Revision #17	1/25/2021	Added Solarban® R77VT
Revision #18	6/3/2021	Added Buy Clean California Act (BCCA).
Revision #19	10/5/2021	Reviewed for compliance and revised language pertaining to EU RoHS and REACH regulations.
Revision #20	11/13/2023	Added PFAS Language. Update disclaimer.

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¹ Reference: Embodied Carbon: Key Considerations for Key Materials, Nov 1, 2020, Anthony Pak, Priopta Innovations Inc.