

SPECIFIER NOTE: THIS DOCUMENT IS INTENDED TO BE A GUIDE FOR RESEARCHING ENVIRONMENTAL ISSUES RELATIVE TO BUILDING PRODUCTS. ISSUES ARE ORGANIZED UNDER THREE PRIMARY CATEGORIES: RESOURCE MANAGEMENT, TOXICITY, AND PERFORMANCE.

ENVIRONMENTAL IMPACT QUESTIONNAIRE (EIQ)

I. DIRECTIONS

A. Complete the following questionnaire and submit for review to:

_____ Paul Jackson Professor of Chemistry _____

B. Relate information concerning only one product per questionnaire.

C. All questions may not apply to every product or manufacturer. It is not expected the manufacturer will have addressed all of the environmental concerns expressed in the EIQ.

1. Respond to every question even if response is “not available”, “not applicable”, or “no”.
2. Attach additional sheets as required. Reference additional sheets to correspond with the question number.

II. IDENTIFICATION

A. Material/Product: _____ Low-E Coating _____

Brand Name: _____ Pella _____

Manufacturer: _____ Cardinal Glass _____

What is the primary use or application for this product?

_____ Residential window application _____

2. Products Containing Wood: Are wood materials obtained from certified sustainable forestry operations: ___Y ___N?

a. If yes, provide name of certification organization for each wood species being used in this project.

<u>Species</u>	<u>Certification Organization</u>
_____	_____
_____	_____
_____	_____

b. If no, state where the product resources are produced and describe forestry operations.

<u>Product Resources</u>	<u>Forestry Operations</u>
_____	_____
_____	_____
_____	_____

C. Recycled Content:

1. List recycled materials used as product raw materials; distinguish pre-consumer and post-consumer materials. Provide percentage amounts in relation to complete (100 percent) product.

<u>Recycled Material</u>	<u>% Pre-Consumer</u>	<u>% Post-Consumer</u>
___Glass_____	_____	_____
___Aluminum_____	_____	_____
___Plastic_____	_____	_____

D. Embodied Energy:

1. Product Transport:

a. Where are raw materials acquired? Identify state and country.

<u>Raw Material</u>	<u>Source (State and Country)</u>
___Silica Sand_____	___MI, USA_____
___Lime_____	___MN, USA_____
___Plastic_____	___MN, USA_____
_____	_____

b. Describe means of transporting raw materials to the manufacturing plant.

Raw Material

Transportation

____ Glass _____ Truck _____

____ Plastic _____ Truck _____

c. Where is product manufactured/fabricated? Identify state and country.

_____ MI, USA _____

d. Is the product warehoused locally, regionally, or nationally?

_____ Locally _____

e. Describe means of transporting product to distribution facilities.

_____ Truck _____

2. Production Energy: List energy sources used in production process; indicate which are renewable energy sources (e.g. wind, solar). Provide percentage amounts in relation to complete (100 percent) product.

Energy Sources

Renewable

Percentage

_____ Natural Gas _____ Y ___x___ N _____ 50% _____

_____ Electricity _____ Y ___x___ N _____ 50% _____

_____ _____ Y ___N _____ _____

3. Provide an embodied energy study of the product from extraction of raw materials through production and assembly. Include an estimate for the total number of BTU's required per pound of finished products. Identify parameters for study.

_____ (Not Provided) _____

4. Describe measures the manufacturer has taken to minimize energy usage in the production process.

_____ Heavily insulated furnace, low wattage fluorescents in manufacturing space _____

_____ Insulated windows to lower heating cost _____

E. Reuse/Recyclability/Disposal:

1. Reuse:

- a. Can product be reused directly (in same or similar use): ___Y ___x___N?
- b. If yes, discuss the possibility of direct reuse of the product after project demolition.

2. Recycling:

- a. Can product be recycled: ___x___Y ___N?
- b. If yes, list the parts of the product which can be post-consumer recycled into raw materials for the product and the parts which can be post-consumer recycled into other types of items. Provide percentage amounts in relation to complete (100 percent) product.

<u>Post-Consumer - Raw</u>	<u>Post-Consumer - Other</u>	<u>Percentage</u>
___ Glass _____	_____	_____
_____	___ Plastic packaging ___	_____
_____	_____	_____

- c. If yes, describe the process of separation of the parts for post-consumer recycling from the product.

___ Only glass that has not been treated can be accepted for recycling ___
___ Glass must be removed from frames and cleaned of any adhesives ___

- d. If yes, list current markets using recycled materials from the product.

- e. If yes, estimate the practical number of times this item can be recycled. ___indefinite___

- 3. Describe the manufacturer's policy and program to facilitate the recycling or reuse of its product by accepting product returns at the end of their "useful life".

___ www.pella.com/resources/pdf/EnvirCopyFINAL.pdf ___

IV. TOXICITY/HAZARDOUS MATERIALS

A. Toxic/Hazardous By-Products:

- 1. List the production wastes involved with the manufacture of this item. Distinguish the production wastes between toxic and non-toxic. Provide percentage amounts in relation to complete (100 percent) product.

<u>Toxic</u>	<u>Non-Toxic</u>	<u>Percentage</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

- 2. Estimate the quantity of production waste produced per unit of finished product.

- 3. Is reclamation of production waste done on site: ___Y ___N? With outside services: ___Y ___N?

- a. If outside services are used, list companies involved.

- 4. Is waste water reclaimed by manufacturer: ___Y ___x___N?

- a. If yes, describe the process of recycling/reuse of waste water.

5. Describe the manufacturer's active steps to minimize or eliminate production wastes; include process of liquid and solid waste material treatment or reclamation if performed at manufacturing site.

6. Describe the manufacturing procedures and chemicals involved that would be considered better than industry standard.

B. Toxic/Hazardous Contents (carcinogens and other hazards inherent in product/material):

1. Provide a complete chemical profile of the item; include all chemical components and provide percentage amounts in relation to complete (100 percent) product; identify biocides (mildewcides or in-can preservatives) and carcinogens listed by any of the following:

- a. United States Environmental Protection Agency (EPA) Carcinogen Assessment Group (CAG) list of carcinogens.
- b. Clean Air Act Sections 109, 111, and 112.
- c. The National Toxicology Program's latest published "Annual Report on Carcinogens".
- d. IARC Human Carcinogens (Group 1, 2A, and 2B).
- e. California Proposition 65.

<u>Chemical</u>	<u>Carcinogen</u>	<u>Percentage</u>
_____	___ Y ___ N	_____
_____	___ Y ___ N	_____
_____	___ Y ___ N	_____
_____	___ Y ___ N	_____
_____	___ Y ___ N	_____
_____	___ Y ___ N	_____

C. Material Safety Data Sheet (MSDS):

1. Provide Material Safety Data Sheet (MSDS).

- a. Articles: Finished products which are manufactured off-site and shipped to the project for installation while conforming to Title 29 of the Code of Federal Regulations, OSHA Hazard Communication Regulation 29CFR 1910.1200, Section (b)5 and Section (c) are defined as articles. If by being defined as an article, a MSDS has not been developed for a particular product, then provide MSDS on raw materials, goods, and items used in the fabrication of that article.

D. Outgassing/Reactivity:

1. Chlorofluorocarbon (CFC):

- a. Are CFC's or HCFC's used in the manufacture and/or content of the item specified:

___Y ___x___N?

- b. If CFC's or HCFC's were previously used in the product and/or its manufacture, describe measures taken by manufacturer to eliminate their use.

2. Indoor Air Quality:

- a. Does the product outgas (emit) carcinogens or other hazardous substances into the air after installation, including final curing/drying: ___Y ___x___N?

- b. If yes, submit IAQ test report.

E. Electromagnetic Radiation:

1. Does the product emit electromagnetic radiation: ___Y ___x___N?

2. If yes, at what rate per hour? _____

3. If yes, describe methods for installation, use, and maintenance of product to minimize generation of and occupant exposure to electromagnetic radiation.

F. Compliance with Regulations (Environmental Statutory Compliance):

1. Does the manufacturer meet all federal, state, and local environmental laws, including laws governing air emissions, waste water treatment, and solid waste disposal/treatment:

Y N?

2. Has the manufacturer met the above criteria for the previous five years: Y N?

3. List the applicable standard.

4. Does the product meet applicable industry standards, such as ASTM, Green Seal, manufacturing standards, LA or NY research report numbers, and UL approvals: Y N? List these standards.

Energy Star

V. **PERFORMANCE - INSTALLATION**

A. Environmental Procedures/Precautions:

1. Describe special procedures and precautions to be used while handling and installing the product:

2. Identify accessories, such as fasteners, sealers, and adhesives that are non-toxic (or less toxic than industry standard), energy efficient, or recycled or recyclable products?

B. Installation Energy:

1. Product Transport: List the means to transport the finished product to the construction site.

2. Installation: List energy means and describe energy requirements for installation of the product.

C. Construction Waste:

1. List the recommended method(s) for proper products disposal; stipulate preferred method and restrictions which might apply.

2. Comment on the environmental impact of the product as a waste material.

3. Packaging:

- a. Describe packaging for the product.

- b. Does manufacturer accept return of used packaging for reuse: ___Y ___N?

- c. If yes, state limitations and procedures for packaging return.

VI. PERFORMANCE - OPERATIONS

A. Maintenance

- 1. Describe the recommended cleaning and maintenance for the product using products which have minimal VOC emission.

_____ soap and water, vinegar, window cleaner _____

- 2. Estimate the "useful life" expectancy for this product.

_____ 20+ years _____

- 3. Are replacement parts available: Y N?

a. If yes, can replacement parts be installed in the field: Y N?

- 4. Provide a copy of the life cycle analysis for this product.

- 5. Provide a copy of the manufacturer's warranty for this product.

B. Energy Efficiency (energy required to operate/maintain):

- 1. Estimate BTU's required to operate the product when new? _____n/a_____ ; after five years? _____ ; after ten years? _____

C. Compliance with Regulations (Environmental Statutory Compliance):

- 1. Does the product meet all federal, state, and local environmental laws, including laws governing energy efficiency and air emissions: Y N?

- 2. Has the product met the above criteria for the previous five years: Y N?

- 3. List the applicable standards.

VII. CORPORATE COMMITMENT

A. Corporate Environmental Policy:

1. Provide copy of manufacturer's stated environmental policies.

END OF ENVIRONMENTAL IMPACT QUESTIONNAIRE