NEW PART NUMBER REQUEST FORM

REQUESTED BY: Vickey Holliday DATE: 04/10/13

PROJECT NAME OR BUILDING NO. : First Solar

REPLACEMENT PART: YES: ☐ NO: ☒

IF YES, WHICH PARTS:

ONE TIME USAGE: YES: ☐ NO: ☒

REASON FOR NEW PART: CUSTOMER REQUEST

PART NUMBER: 860-00010 ☑ 4/11/13 SEARCH: ExFinish PART REVISION: Ø

PART COUNTRY OF ORIGIN:

COMPLETE DESCRIPTION: 4mm x 48" x 96" white coroplast sheets

TYPE: PURCHASED ☐ MANUFACTURED ☐ SALES KIT ☐

CLASS: INSPECTION REQUIRED: YES: ☐ NO: ☒

PART WEIGHT: DWG. REF.: UOM: sheet

MFG NAME: MFG # / CATALOG # :

PART COST: $8.75/sheet BZL CAK 4/18/13 LIKE PART :

BUYER: Dena Corterez LEAD TIME: 5-7 days

VENDOR NAME: Regal Plastics

VENDOR TELEPHONE # : 318-635-0561

VENDOR CONTACT: Tom LaBarbera

APPROVALS

ENGINEERING: KT DATE: 4/11/13

PURCHASING: BZL DATE: 4/17/13

✓✓

Inteplast Group, Ltd.
Material Safety Data Sheet

MANUFACTURER

MSDS No: WP-PP Profile

World-Pak Division, Inteplast Group, Ltd.
101 Inteplast Blvd., Highway 1593, Lolita, Texas 77971
Telephone: (361) 874-3714 Fax: (361) 874-3982

Preparation Date: 10/12/2010
Supersedes Date: 08/17/2004

Emergency: 800-424-9300 (CHEMTREC)

1. PRODUCT IDENTIFICATION

Product Name:	IntePro Polypropylene Sheets, All Grades
Product Code:	IntePro PP Sheets
Chemical Family:	Polyolefin
Chemical Name:	Ethylene-Propylene Copolymer
CAS No:	Not Applicable
Synonyms:	Corrugated PP Sheets, PP Profile Sheets, IntePro PP Sheets
Formula:	Proprietary
Technical Information:	(361) 874-3714

2. PRODUCT INGREDIENTS

No.	Components	CAS No.	Percent (%)	OSHA PEL
1	Polypropylene Copolymer	9010-79-1	50 - 100%	Not established
2	Proprietary	Mixtures	0 - 50%	Not established

3. PHYSICAL/CHEMICAL PROPERTIES

Physical Form:	Solid
Color:	Finished sheets with colors specified
Odor:	Insignificant
Boiling Point:	Not applicable
Melting Point:	150 – 170°C
Freezing Point:	Not applicable
Solubility in Water:	None
Specific Gravity:	0.7- 1.2 (water = 1)
Vapor Density:	Not applicable (air = 1)
Evaporation Rate:	None (Butyl Acetate = 1)
Vapor Pressure:	Not applicable
% Volatile:	None
pH:	Not applicable

The physical data presented above are typical values and should not be construed as a specification.

4. FIRE HAZARD DATA AND FIGHTING METHOD

Flash Point:	Not applicable
Autoignition:	Not applicable
Flammable Limits	
In Air (LEL, %)	Not applicable
(UEL, %)	Not applicable

Extinguishing Media:	Dry chemical, carbon dioxide or foam
Special Fire Fighting Procedure:	Thermal decomposition may occur at temperatures greater than 390°C. In the event of a fire, wear NIOSH approved, positive pressure, self-contained breathing apparatus (SCBA) and full protective clothing. Extinguish fires with foam or dry chemical. Do not use water jet.
Unusual Fire and Explosion Hazards:	Avoid accumulation and dispersion of dust to reduce explosion potential. Fire may produce irritating gases and dense smoke.

5. HUMAN HEALTH DATA

Emergency Overview:	Practically nontoxic
Primary Route(s) of Exposure:	Inhalation, Eye, Skin Contact

Potential Health Effects and Symptoms of Over-Exposure

Negligible hazard at room temperature under normal use.

Eye Contact:	Solid flake or dust may cause transient irritation as a result of mechanical abrasion.
Skin Contact:	Essentially no irritation to skin. Mechanical injury only. Hot solid may cause thermal burns.
Inhalation:	Exposure to dust at high concentration may cause irritation to respiratory tract.
Ingestion:	May cause choking if swallowed.
Medical Conditions Aggravated by Overexposure:	Not expected. IntePro is generally accepted as being biologically inert. No specific antidotal treatment, symptomatic support required.
Carcinogenicity:	**NTP:** No **IARC:** No **OSHA:** No

6. FIRST AID MEASURES

Eye Contact:	Immediately flush eyes with water for at least 15 minutes. Do not rub the eyes. If irritation or other symptoms occur, consult a physician.
Skin Contact:	Get medical attention for serious burns. In case of skin contact with hot IntePro, immediately immerse in or flush with clean, cold water.
Inhalation:	Remove to fresh air. Consult physician if irritation of respiratory passage occurs.
Ingestion:	Consult physician.
Notes to Physician:	No known delayed effects following single exposure.
Other Instructions:	None

7. EXPOSURE CONTROLS, PERSONAL PROTECTION RECOMMENDATIONS

Eye Protection:	Safety glasses
Skin Protection:	Gloves required when handling hot material
Respiratory Protection:	None required in normal use of product. NIOSH approved dust mask recommended if dust conditions exist.
Engineering Control:	Ventilation Requirements – General General ventilation should be sufficient. However, if operating conditions create high airborne concentrations of this material, special ventilation may be needed. If handling results in dust generation, special ventilation may be needed to ensure that dust exposure does not exceed the OHSA PEL for nuisance dust.
Required Work/Hygiene Procedure:	Minimize contact with skin. Do not eat, drink or smoke in work area. Wash hands thoroughly after handling, especially before eating drinking, smoking, chewing or using restroom facility. Dusted clothing and shoes should be thoroughly cleaned before use.

Exposure Guidelines:

No.	Components	OSHA-PEL	ACGIH-TLV
1	Polypropylene Copolymer	None Nuisance dust: 10 mg/M^3 TWA	None

8. ACCIDENTAL RELEASE CONTROL MEASURES

Response to Spills: Not applicable

9. HANDLING AND STORAGE

Handling: Wear safety glasses during cutting and fabricating processes. Electrostatic charge may build up during handling. Grounding of equipment is recommended.

Storage: Store in a dry place and away from direct sunlight.

Container Use: Keep container closed.

10. STABILITY AND REACTIVITY

Stability: Stable

Conditions to Avoid: Strong oxidizers

Hazardous Decomposition: Carbon dioxide, carbon monoxide

Hazardous Polymerization: Will not occur

11. DISPOSAL CONSIDERATIONS

Disposal Method: It must be disposed of in accordance with Federal, State and local environmental control regulations.

Recycle/Reclaim: Recycling and reclamation of IntePro should be encouraged where possible.

12. TRANSPORT INFORMATION

DOT Shipping Name: Not listed

DOT Label: Not regulated

DOT Hazard Class: Not applicable

UN/NA Number: Not applicable

Hazard Label(s): Not applicable

Hazard Placard(s): Not applicable

Packing Group: Not applicable

Bulk Packaging: Not applicable

RQ: Not applicable

Emergency Response Guide (ERG) No.: Not applicable

13. TOXICOLOGICAL INFORMATION

The information provided below can be subject to misinterpretation. Therefore, it is essential the following information be interpreted by individuals trained in its evaluation.

Chemical	Toxicity Data
Polypropylene copolymer	No toxicology data available Polypropylene is not considered hazardous materials under the OHSA Hazard Communication Standard

14. ECOLOGICAL INFORMATION

No data is available on the adverse effects of this product on the environment. Neither COD or BOD data are available.

15. REGULATORY INFORMATION

FEDERAL REGULATORY INFORMATION
Polypropylene copolymer

OSHA Status:	None
EPA Clean Air Act Status:	None
EPA Clean Water Act Status:	None
TSCA Status:	All ingredients are listed on TSCA Inventory (40 CFR710)
CERCLA RQ:	None

SARA Title III
Polypropylene copolymer

Section 302*	Section 313**	Section 311/312***
None	None	None

*Reportable quantity of extremely hazardous substance, Sec. 302
*Threshold planning quantity, extremely hazardous substance, Sec. 302
**Toxic chemical, Sec. 313
**Category as required by Sec 313 (40CFR372.65C). Must be used on Toxic Release Inventory form.
***Hazard category for SARA Sec.311/312 reporting H1=acute health hazard, H2=chronic health hazard, P3=fire hazard, P4=sudden release of pressure hazard, P5=reactive hazard

RCRA Status: If disposed of in its purchased form, this would not be a RCRA hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product used to determine at the time of disposal whether a material containing the product or derived from the product should be classified as a hazardous waste (40CFR261.20-24).

OTHER REGULATORY INFORMATION

The following chemicals are specifically listed by individual states; other product-specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements, you should contact the appropriate agency in your state.

State	Chemical	Regulation
None	Polypropylene Copolymer	None

Product Name: IntePro PP Sheets

International
None

16. OTHER INFORMATION

NFPA	HMIS
Fire – 1	Health - 0
Health – 0	Flammability – 1
Reactivity – 0	Reactivity - 0
Specific Hazard – None	Personal Protection Index - E

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Inteplast Group, Ltd. Neither Inteplast Group, Ltd. nor any of its subsidiaries assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards, which exist. Inteplast Group, Ltd. assumes no legal responsibility for loss, damage or expense arising out of, or in any way connected with, the handling, storage, use or disposal of this product.

Technical Properties of Polypropylene (PP) IntePro

Typical Mechanical Properties

(a) **Edge crush resistance (ECR)** and **flat crush resistance (FCR)**: PP IntePro of straight flute and I-beam rib

Item	Test Method	Unit	2 mm	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	13 mm	16 mm	19 mm	25 mm
Unit Wt.		g/m^2	490	600	750	1,000	1,400	1,800	2,000	2,500	3,300	4,000	4,800
FCR	TAPPI-825	lb/in^2	190	90	170	170	230	140	140	280	420	280	350
ECR	TAPPI-811, Method A[1]	lb/in	20	40	55	70	100	NB[3]	NB[3]	NB[3]	NB[3]	NB[3]	NB[3]
ECR	TAPPI-811, Method B[2]	lb/in	--	--	--	--	25	55	80	115	270	350	500

(1) The test specimen is 2" in width and 2" in height.
(2) The test specimen is 8" in width and 10" in height.
(3) NB: no bending during the test

(b) **Mullen Burst** (TAPPI-810): no burst up to 1,000 psi for all thickness

Typical Physical Properties

(a) **Thermal Expansion Coefficient** (ASTM D 696):

from -30 to 0°C	$6.5 \times 10^{-5}\ °C^{-1}$
from 0 to 30°C	$10.5 \times 10^{-5}\ °C^{-1}$
from 30 to 60°C	$14.0 \times 10^{-5}\ °C^{-1}$

(b) **Water Absorption** at 24 hours immersion (ASTM D 648): 0.03%

(c) **Melting Temperature** (DSC method): ~ 165°C

(d) **R-Value** at 75°F Mean (ASTM C-177): 0.078 x *l* (thickness of IntePro in mm)

(e) **Water Vapor Transmission Rate (WVTR)** at 23°C (ASTM C 209):

WVTR, $g/(100\ in^2 \times Day) = 1.3 \times 10^{-6} \times (p1 - p2) / l$

Where p1 and p2 are the partial pressures of water vapor in Pascal at the two exposed surfaces of IntePro and *l* is the total thickness in millimeter of the two skin layers

(f) **Sound Transmission Loss** from 400 to 12,800 Hz (SAE J1400):

4mm IntePro, 154 lb/msf	9.6-12.8 dB
10 mm IntePro, 410 lb/msf	13.1-16.3 dB

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(g) **Coefficient of Friction, Static** (COF, ASTM D 1894): ~0.30 (IntePro in along the flute direction vs. IntePro in the same direction)

Typical Chemical Properties

(a) **FDA Status**: The based resin material of IntePro meets the requirements of the Food and Drug Administration, 21 CFR 177.1520, for a resin that may be processed for use involving contact with food. The status of pigmented or other modified IntePro is available upon request.

(b) **Chemical Resistance**: PP IntePro is resistant to acids, alkalis, salt solutions, solvents, alcohol, water, oil, fat and detergent at room temperature. IntePro is not resistant to aromatic or chlorinated hydrocarbons such as benzene at elevated temperatures and strong oxidizing agents. Information of chemical resistance to specific chemical is available upon inquiry.

(c) **pH value**: PP IntePro is inert and hydrophobic. Therefore, IntePro generally does not affect the pH factor when it is in contact with an aqueous solution.

Recycle/ Safety

(a) PP IntePro is produced from a high impact polypropylene copolymer and is fully recyclable. The resin identification code (RIC) of polypropylene according to Society of the Plastics Industry (SPI) is

(b) If recycling is not possible, disposal to landfills or incineration in accordance with governmental laws and regulations is considered safe.

Special Grades

(a) **UltraSmooth IntePro**: The surface roughness of 4 mm white IntePro boards were tested by a Hommel T1000 surface roughness tester. The Ultrasmooth IntePro improves the surface roughness, Ra value, of regular corrugated PP boards in the industry from about 300×10^{-6} to 80×10^{-6} inch in the cross flute direction!

(b) **SuperClear IntePro**: Regular IntePro of natural color is milky and can not be seen through. SuperClear IntePro substantially enhances the transparency of the IntePro board. SuperClear IntePro of 10 mm thick has a contact clarity of 69% (ASTM D1746, specimen is in contact with the sensor window) as compared to about 25% of regular corrugated PP boards of natural color. SuperClear IntePro tends to be more brittle as compare to regular IntePro, users are strongly recommended to make their own tests and evaluation when converting works, such as cutting, slitting, etc., are necessary.

(c) **Antistatic IntePro**: The surface resistance is 10^{9} to 10^{12} ohms /square as measured according to ASTM D 257. IntePro boards of standard colors are available. Special colors may be available upon request.

(d) **Conductive IntePro**: The surface resistance tested according to ASTM D 257 is 10^3 to 10^5 ohms /square. The static decay according to FTM 101C is less than 2 seconds. Only IntePro of black color is available. The conductivity of IntePro is permanent.

(e) **Ultra Outdoor Weather Resistant IntePro**: White polypropylene IntePro of ultra outdoor weather resistance was tested in a weatherometer according to SAE J1960 for 2,500 hours, which corresponds to 1 year in Miami, FL, without brittleness. The outdoor weather resistance relates to the color, temperature, application environment, etc., users are strongly recommended to make their own tests and evaluation. For extended outdoor exposure over one year, it is recommended to use IntePro of polyethylene material.

(f) **White Opaque IntePro:** The light transmission rate of 4 mm white opaque IntePro tested according to ASTM D1746 (specimen is in contact with the sensor window) is only 0.7% as compare to 12.9% of regular white IntePro.

(g) **Volatile Corrosive Inhibiting (VCI) IntePro**: VCI IntePro contains volatile corrosive inhibitor, which can settle on exposed metal in a package, to protect metal from corrosion and extend the storage life. The protection of VCI IntePro relates to the temperature, humidity of the environment, the design of the containers, etc., users are strongly recommended to make their own tests and evaluation to determine feasibility.

Note: Please note that the above information is to the best of our knowledge and is made without guarantee. We can not anticipate all conditions under which this information and our product, or the products of other manufactures in combination with our products may be used. Users are advised to make their own test and evaluation to determine the safety and suitability for their own purposes. We accept no responsibility for results obtained by the application of the information or the safety and suitability of our products.

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