

IntePro® Polypropylene Board Safety Data Sheet

1. Identification

Identification of the substance

Product Code: IntePro® Polypropylene Board, Standard Grades; IntePro® Titan Sheets.

Product Description: Fluted plastic board in various colors

Synonyms: Corrugated PP sheets; PP profile sheets; IntePro® PP sheets; IntePro® Titan Sheets.

Use(s) of the substance: Product intended for use in a wide range of panel/sheet applications in graphics, packaging, auto parts, etc.

Restriction(s) on use of the substance: None known

Company Identification

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2. Hazard(s) Identification

Physical Appearance: Fluted polypropylene boards that are translucent or in various colors

Immediate Concerns: When using or handling IntePro® boards, as supplied, there are very low hazards.

OSHA Hazard Category: Combustible dust

GHS Hazard Categories: Not classified

Signal Word: Warning! This product as shipped is not classified as a combustible dust; however, a combustible concentration of dust may occur if fines are suspended in air (e.g. from cutting or sanding the IntePro® boards).

Pictogram: There is no pictogram for a combustible dust hazard.

Rough edges of IntePro® boards could result in minor cuts to hands. Appropriate gloves should be worn to prevent cuts and/or scraps.

Avoid contact with strong oxidizing agents.

When working with the IntePro® boards at hot temperatures, the material may begin to decompose producing fumes that can contain carbon dioxide, carbon monoxide, and other unidentified organic compounds that come from the breakdown of the materials used to make the boards. Adequate ventilation should be provided to minimize exposures to fumes.

When cutting, shaping or modifying IntePro® boards, other hazards may exist.

Potential Health Effects

Eyes: Dust from cutting may result and mechanically irritate the eyes; if using elevated temperatures, vapors may irritate eyes.

Skin: Cuts or scraps referenced above; if using elevated temperatures to soften the IntePro® boards,

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exposure to molten resin may cause thermal burns.

Ingestion: Dust or debris from cutting may irritate the throat, mouth and stomach.

Inhalation: Inhalation of fine dust, from cutting or sanding, may cause irritation of the respiratory system; inhalation of vapors from use of elevated temperatures may also cause irritation of the respiratory system.

3. Composition and Information on Ingredients

The primary composition of this product is polypropylene. This product contains a proprietary blend of components encapsulated within a polymer matrix.

Chemical Name	CAS Number	Wt. %
Propylene/ethylene copolymer	9010-79-1	70-100
Proprietary	Mixtures	0-30

4. First Aid Measures

The following applies should the IntePro® boards be cut, sanded or otherwise processed which generates dust, debris or vapors.

Eye Contact: Immediately flush eyes with water for at least 15 minutes. Do not rub the eyes. If irritation develops, consult a physician.

Skin: Get medical attention for serious burns. In case of skin contact with hot IntePro®, immediately immerse in or flush with clean, cold water.

Ingestion: Consult physician.

Inhalation: Move to fresh air. If irritation persists or breathing is difficult, get medical attention.

5. Fire Fighting Measures

Extinguishing Media: Foam, dry chemical, carbon dioxide (CO₂), water spray

Hazardous Combustion Products: Carbon monoxide, carbon dioxide, and other possible toxic combustion products.

Explosion Hazard: Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Special protective equipment for firefighters: Use self-contained breathing apparatus and full protective gear.

Sensitive to Static Discharge: Static discharge could be an ignition source for a combustible concentration of dust.

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6. Accidental Release Measures

As supplied, the product presents no risk of spill or release.

7. Handling and Storage

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

Handling: If the product is cut or sanded, avoid exposure to dust and debris. Provide appropriate local ventilation at machinery and at places where dust can be generated. In addition, wear suitable respiratory equipment to avoid breathing dusts containing titanium dioxide and/or carbon black.

Storage: Store in a dry place and away from direct sunlight. Keep away from heat, flame and strong oxidizing agents.

8. Exposure Controls and Personal Protection

Occupational Exposure Limits: Not applicable.

Engineering Controls: Ventilation Requirements – 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 OSHA PEL for nuisance dust.

Personal Protective Equipment

Respiratory Protection: Not required under normal handling and processing. Should conditions exist that require respiratory protection, for example while cutting or sanding generating dusts, a NIOSH/MSHA approved respirator should be worn.

Eye Protection: When cutting or processing the product, wear safety glasses with side shields.

Body Protection: Wear protective gloves to avoid incidental cuts or scraps that could occur when handling the edges of product.

9. Physical and Chemical Properties

Physical Form: Fluted boards

Specific Gravity: 0.7 to 1.2 (water = 1)

Odor: Insignificant

Solubility in water: Insoluble

Melting Point: 150 – 170°C (302 - 338°F)

Flash Point: 422°C (792°F)

Auto Ignition Temp: 425°C (797°F)

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

10. Stability and Reactivity

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Chemical Stability: Stable

Conditions to Avoid: Do not store product near heat or flame. When cutting or sanding, minimize dust generation and accumulation. Avoid contact with strong oxidizing agents.

Hazardous Decomposition Products: No dangerous decomposition products known.

11. Toxicological Information

Acute Toxicity

Skin Irritation: Not expected to cause skin irritation.

Eye Irritation: Mechanical eye irritation

Sensitization/Allergic Reaction: No sensitizing effects known

Repeated dose toxicity: No known chronic health effects.

12. Ecological Information

Ecotoxicity: No data is available on the adverse effects of this product on the environment.

Persistence and Degradability: No data available

Bioaccumulative Potential: No data available.

13. Disposal Considerations

DISPOSAL METHOD

- (1) Recycle (reprocess) and reclamation of IntePro should be encouraged where possible.
 - (2) Incineration including energy recovery of waste material in a permitted facility in accordance with local, state or provincial and federal regulations.
 - (3) Landfilling in a licensed facility in accordance with local, state or provincial and federal regulations.
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14. Transport Information

This product is not regulated as a hazardous material/dangerous good for transportation. This product is not regulated by US DOT, IMO, and IATA. It is not applicable for UN/NA number, hazard label, hazard placard, packing group, bulk packaging, RQ, and emergency response guide (ERG) number.

15. Regulatory Information

United States

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U.S. Toxic Substances Control Act (TSCA): All component(s) comprising these products are compliant with TSCA. These products have no special requirements under TSCA (e.g. consent orders, test rules, 12(b) requirements, etc.).

OSHA Hazard Communication Rule: This product is not considered a hazardous material as shipped or at temperatures below the melting point according to OSHA definitions.

SARA Title III: This product is not subject to SARA Title III requirements.

SARA Section 302 Toxic Chemical List: No components listed.

SARA Section 313 Toxic Chemical List: No components listed.

Canada

Domestic Substances List (DSL): All component(s) comprising this product are compliant with the DSL.

WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM): This product is not considered a controlled substance under WHMIS. This SDS meets WHMIS format requirements.

16. Other Information

HMIS Ratings:	Health:	0
	Flammability:	1
	Physical Hazard:	0

Revision: 2016-11-17

Revision Changes: Changed format to 16 Section Safety Data Sheet (SDS) to comply with OSHA HazCom Standard update published in the Federal Register of March 26, 2012 and the UN Global Harmonization System of Classification and Labeling of Chemicals (GHS) requirements.

Refer to NFPA 652, Standard for Combustible Dusts, and NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.

Disclaimer:

This Safety Data Sheet (SDS) conforms to the U.S. Department of Labor Occupational Safety and Health Administration requirements in 29 CFR 1910.1200 and is an integral part of any "**RIGHT TO KNOW**" program. This information should be read by the customer and made available to anyone who has reason to use or to come in contact with this product.

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of World-Pak Division, Inteplast Group, Corporation. Neither World-Pak Division, Inteplast Group Corporation 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. World-Pak Division, Inteplast Group Corporation 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.

IntePro® Standard Products and Tolerance

Standard Thickness and Weight of Polypropylene (PP) IntePro

Thickness	2 mm	3 mm	4 mm	5 mm	6 mm	7 mm	8 mm	10 mm	13 mm	16 mm	19 mm	25 mm
Unit Weight in g/m ²	490	600	750	1,000	1,400	1,700	1,800	2,000	2,690	3,300	4,000	4,800
Unit Weight in lbs/msf	100	123	154	205	287	348	369	410	550	680	820	984

Note: PP IntePro of special weight and thickness may be available upon request.

Tolerance of IntePro

(a) Width:

Mill-Run IntePro: $\pm 1/8''$

Square-Cut IntePro: $\pm 1/16''$

(b) Length variation is listed in the following table.

IntePro Length	Mill-Run IntePro	Square-Cut IntePro
0" to < 48"	0" to +3/4"	-1/16" to +1/8"
48" to < 96"	0" to +1 1/2"	-1/8" to +1/4"
$\geq 96''$	0" to (1 1/2" + 1/4" x N*)	$\pm 1/4''$

Note: N = (Length of IntePro in inches – 96'') / 24''

(c) Thickness: $\pm 5\%$

(d) Unit Weight: $\pm 5\%$

(e) Surface Treatment (ASTM D2578): > 46 dyne/cm (2 to 8 mm in thickness)
 > 42 dyne/cm (10 to 13 mm in thickness)
 > 40 dyne/cm (16 to 25 mm in thickness)

(f) Square Tolerance is the difference of the two diagonals of IntePro board.

IntePro Length	Mill-Run IntePro	Square-Cut IntePro
0" to < 48"	< 3/8"	< 1/16"
48" to < 96"	< 3/4"	< 1/8"
$\geq 96''$	< (3/4" + 1/4" x N*)	< 1/4"

Note: N = (Length of IntePro in inches – 96'') / 24''

(g) Straightness: IntePro may slightly curve in along flute direction. The straightness is related to the ratio of length and width of IntePro board. The more slender the board is, the more obvious the curve is. The straightness can be obtained from measuring the maximum gap between a straight edge and an IntePro board when the two corners of IntePro board touch the straight edge. The tolerance of straightness of mill-run IntePro is listed in the following two tables.

Length of IntePro is < 96”

Ratio of Length to Width	0 to <3	≥ 3
Straightness Tolerance	< 1/8"	< 3/16"

Length of IntePro is ≥ 96 ”

Ratio of Length to Width	0 to <3	3 to <4	≥ 4
Straightness Tolerance	< (3/16"+1/16"x N*)	< (3/16"+1/16"x N*)	< (1/4"+1/16"x N*)

Note: N = (Length of IntePro in inches – 96”) / 24”

(h) Warp is the height of the “hump” when an IntePro board is laid on a flat surface. The warp tolerance can be found out from the following table.

Length of IntePro is < 96”

Width of IntePro	0" to <24"	24" to <48"	48" to <60"	≥ 60 "
Warp Tolerance	< 1/4"	< 1/2"	< 1"	<1 1/4"

Length of IntePro is ≥ 96 ”

Width of IntePro	0" to <24"	24" to <48"	48" to <60"	≥ 60 "
Warp Tolerance	< (3/8"+1/8"xN*)	< (3/4"+1/4"xN*)	< (1 1/4"+1/4"xN*)	< (1 1/2"+ 1/4"xN*)

Note: N = (Length of IntePro in inches – 96”) / 24”

(i) Shipment on Piece Count: - 0%, + 5% of order piece quantity

Note: The information is based on our current knowledge and is subjected to change without notice.

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

(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): $0.078 \times l$ (thickness of IntePro in mm)

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

$$\text{WVTR, g}/(100 \text{ in}^2 \times \text{Day}) = 1.3 \times 10^{-6} \times (p_1 - p_2) / l$$

Where p_1 and p_2 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

- (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.