

The high performance PET sandwich core

Divinycell PN is a structural thermoplastic core material perfectly suited in a variety of sandwich applications to increase performance and reduce weight. Divinycell PN is used in industrial, transportation, marine and wind applications. It is easy to machine and has good dimensional stability at elevated temperatures. It is suitable for a variety of processes including infusion, prepreg and press bonding.

The material has a stable closed cell structure and is insensitive to moisture, decay or rot, making it an excellent substitute for organic materials such as balsa and plywood. High density Divinycell PN (PN200 and PN250) is particularly suited for flooring, decking, local inserts in the way of fittings; either tapped or bolted through and has very good screw retention. Divinycell PN is 100% recyclable.

Mechanical properties Divinycell® PN

| Property | Test Procedure ¹ | Unit | | PN65 | PN80 | PN115 | PN200 | PN250 |
|-----------------------------------|-----------------------------|-------------------|---------|------|------|-------|-------|-------|
| Compressive Strength ² | ASTM D 1621 | MPa | Nominal | 0.7 | 1 | 1.7 | 4 | 5.2 |
| | | | Minimum | 0.55 | 0.8 | 1.35 | 3.5 | 4.6 |
| Compressive Modulus ² | ASTM D 1621 B-73 | MPa | Nominal | 65 | 80 | 115 | 244 | 297 |
| | | | Minimum | 42 | 65 | 85 | 183 | 237 |
| Shear Strength ³ | ISO 1922 | MPa | Nominal | 0.45 | 0.6 | 0.95 | 2 | 2.3 |
| | | | Minimum | 0.35 | 0.5 | 0.8 | 1.6 | 1.75 |
| Shear Modulus ³ | ISO 1922 | MPa | Nominal | 12 | 20 | 31 | 68 | 85 |
| | | | Minimum | 10 | 15 | 23 | 59 | 76 |
| Shear Strain ³ | ISO 1922 | % | Nominal | 20 | 15 | 12 | 6 | 5.3 |
| | | | | | | | | |
| Density | ISO 845 | kg/m ³ | Nominal | 65 | 80 | 115 | 210 | 250 |
| | | | Minimum | 60 | 75 | 110 | 200 | 238 |

1. All values measured at +23°C.
2. Properties measured through the perpendicular plane of the sheet (in the extrusion direction)
3. Shear properties measured parallel to the welding lines

Nominal value is the average value of a mechanical property at a nominal density
Minimum values are statistically derived minimum properties at minimum density, as per DNV/GL definition.

Product Characteristics

- Recyclable
- Thermoformable
- Good chemical resistance
- Good thermal and sound insulation
- Closed cell structure
- High compression strength
- Very low water absorption
- Insensitive to rot or decay
- Easy to cut and machine
- Exceptional screw retention

Applications within

- Wind blades
- Nacelles
- Tanks and covers
- Paneling
- Sport goods
- Goods transport
- Furniture
- Floors
- Motor homes
- Bridge decking

Technical Characteristics

Technical characteristics Divynycell® PN

| Characteristics ¹ | Unit | PN65 | PN80 | PN115 | PN200 | PN250 | Test method |
|-----------------------------------|-------------------|-------|-------|---------|---------|---------|-------------|
| Density range | kg/m ³ | 60-75 | 75-85 | 110-120 | 200-220 | 238-263 | ISO 845 |
| Thermal conductivity ² | W/(m-K) | 0.033 | 0.033 | 0.035 | 0.046 | TBD | ASTM C177 |

1. Typical values are approximate
2. Thermal conductivity measured at +10°C

Maximum processing temperature is dependent on time, pressure and process conditions. Therefore, users are advised to contact Diab Technical Services to confirm that Divynycell PN is compatible with their particular processing parameters.

Physical characteristics Divynycell® PN

| Format | | Unit | PN65 | PN80 | PN115 | PN200 | PN250 |
|--------------|--------|------|------|------|-------|-------|-------|
| Plain sheets | Length | mm | 2440 | 2440 | 2440 | 2440 | 2440 |
| | Width | mm | 1220 | 1220 | 1220 | 610 | 610 |
| GS sheet | Length | mm | 1220 | 1220 | 1220 | 1220 | 1220 |
| | Width | mm | 1220 | 1220 | 1220 | 610 | 610 |

Custom sheet sizes are available on request.

Disclaimer:

This data sheet may be subject to revision and changes due to development and changes of the material. The data is derived from tests and experience. If not stated as minimum values, the data is average data and should be treated as such. Calculations should be verified by actual tests. The data is furnished without liability for the company and does not constitute a warranty or representation in respect of the material or its use. The company reserves the right to release new data sheets in replacement.

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