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## *Product Data Sheet*

### **SIMPREX<sup>®</sup> M745**

*250°F (121°C) Curing Vinyl Ester Prepreg*

#### **Description**

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SIMPREX<sup>®</sup> M745 is an advanced vinyl ester prepreg designed to provide a high performance-to-cost ratio. SIMPREX<sup>®</sup> M745 has a medium to high tack and provides good adhesion to core materials such as Nomex<sup>®</sup> honeycomb, balsa and polyurethane foam. It is a great choice for many applications in the range of low to medium service temperature.

#### **Features**

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- **Prepreg**
  - ❖ Fast curing cycle: 15-20 min @ 250°F.
  - ❖ Tack time of pieces kept with release film: 5 - 8 hours @ 68°F (Tack can be reactivated with a hair drier during lamination).
  - ❖ Roll tack time out of the bag (with the shrink-film): more than 24 hours @ 68°F.
  - ❖ Suitable for low pressure: 1-3 bar.
  - ❖ Excellent flexibility and handling.
  - ❖ Controlled flow for ease processing (autoclave, press-mold & vacuum bagging).
  
- **Laminate**
  - ❖ Superior toughness and excellent fatigue resistance.
  - ❖ Good resistance to a broad range of organic and inorganic acids, alkalis, oxidizing chemical and salt solutions, commonly up to 212°F (100°C).

#### **Physical Properties on 7781 E-Glass Fabric**

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- Standard weight without release film: 0.089 lb./sq. ft. (470 g/m<sup>2</sup>).
- Standard resin content: 36% by weight.
- Standard tack: good tack on both sides.
- Cured ply thickness: 0.010" (0.254 mm).

#### **Typical Applications**

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- FRP parts for chemical resistance purpose.
- General-purpose composites.
- High performance sporting goods.
- Racing vehicles.



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## Shelf Life

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- 1 year @ **68°F** (20°C).

## Curing Conditions

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In press-mold, laminates should be cured for **15-20 min @ 250°F (121°C) / 1-3 bar**. Pressure should increase gradually to reach its maximum within 60-90 sec. In some applications, a **post-cure @ 266°F (130°C) is recommended for optimum performance**.

- Laminates up to 1/8" (3 mm) thick can be cured without dwell time. **A dwell time should be considered according to thickness and heat-up rate, which depends on the mass, type of tool and molding process (vacuum and autoclave).**
- If a prepreg sheet is maintained long time out of the bag before lamination, and lost its tack, heat it with a hair dryer to reactivate the tackiness.

## Laminate Properties [3 mm thick, cured @ 250°F (121°C), for 15 min. & Post-cured @ 266°F (130°C)]

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|  | E-Glass 7781 | Stitched UD Carbon<br>(Standard Modulus) |
|--|--------------|--|
| Flexural Strength, MPa (ASTM D790) :             | 550-600      | 1312-1448                                |
| Flexural Modulus, GPa (ASTM D790) :              | 22-24        | 109-110                                  |
| Interlaminar Shear Strength, MPa (ASTM D-2344) : | 48-52        | 75-84                                    |

- Glass Transition Temperature (DSC) : 120-125°C

## Storage

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SIMPREX® M745 prepreg should be stored in its **original packaging film** (humidity and air-proof), or an equivalent barrier film, at **68°F** (20°C).

## Handling and Safety Precautions

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Usual precautions should be observed. The prepreg contains mainly uncured synthetic resins. The operator has to use appropriate mask – respirator and work in a clean, dry (R.H. = 50% or less) and ventilated area. The use of clean disposable inert gloves provides protection for the operator and avoids contamination of material and components.

## Important Notice

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The data reported in this sheet are based on representative samples. Since the method and circumstances of handling and processing are key to the material performance, Simex Technologies Inc. does not guaranty these data. Users should make their own assessment of the suitability of any product for the performance required.