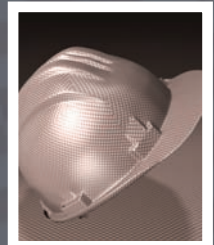
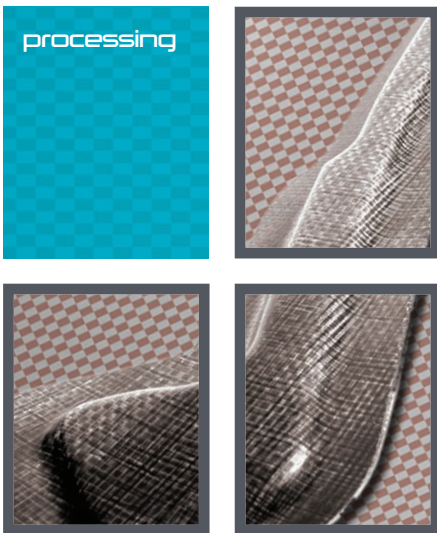


Self Reinforcing Polypropylene (srPP)

> processing





Thermoforming is a process in which flat thermoplastic sheet(s) can be heated and formed into a desired shape.

Composite parts can be formed in a two-step thermoforming process:

### > Step 1

#### **Hot Consolidation**

Pressure is applied and the fabric is formed into mould. The fabric temperature is raised to the forming temperature, melting the copolymer “cap” coat. The sample is then held at the forming temperature for the compression time.

### > Step 2

#### **Cold Consolidation**

The mould is chilled resulting in rapid cooling of the formed part under pressure.

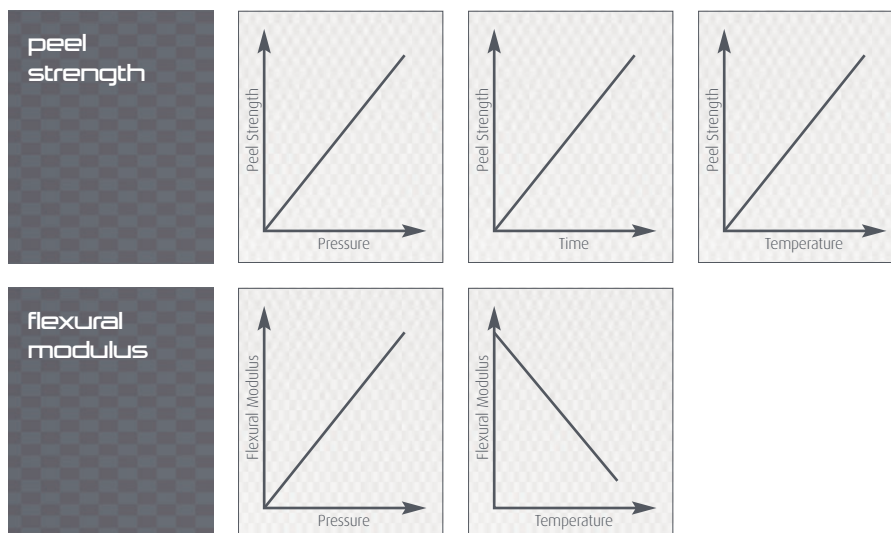


## Self Reinforcing Polypropylene (srPP)

In thermoprocessing, there are a number of key processing parameters which will influence the properties of the formed part.

- > **Moulding pressure**
- > **Moulding temperature**
- > **Compression time**
- > **Number of layers of fabric in panel or formed part**

Alteration of the key processing parameters influences the properties of the finished article. A project was carried out at an independent test laboratory to form a deep draw part, where the effects on peel strength and flexural modulus were identified. The diagrams below show the effect of increasing pressure, temperature and consolidation time on the properties of the material in this particular application.



## > processing

It is important to note that optimum processing conditions for each individual application need to be established independently. The information below is offered as a guideline.

|                                       |     |                        |            |
|---------------------------------------|-----|------------------------|------------|
| <b>Preheating</b>                     | °C  | Recommended            | 120        |
| <b>Hot Consolidation Pressure</b>     | bar | Minimum<br>Recommended | 20<br>> 62 |
| <b>Hot Consolidation Temperature</b>  | °C  | 120 - 150              |            |
| <b>Cold Consolidation Pressure</b>    | bar | Recommended            | 175        |
| <b>Cold Consolidation Temperature</b> | °C  | 0 - 15                 |            |

The time for which the material is heated and held in the cold consolidation press is dependent on the number of layers in the panel or formed part.

### Processing routes for armordon®

