



Composite Sanitaryware

Scott Bader Guide

Introduction

Scott Bader has a long-standing history of supplying high-performance products to the sanitaryware market including ISO-NPG gelcoats, Acrylic bonding resins, casting resins and matched tooling systems. Products lighted in blue can be manufactured and supplied Scott Bader's Jebel Ali, Dubai facility.

There are 3 main GRP manufacturing processes that are most sanitaryware:

1. Acrylic Sheet + GRP Backing (Thermoformed Acrylic + GRP Resin Backing)
2. ISO-NPG Gelcoat + GRP Resin Backing (Traditional GRP)
3. ISO-NPG Gelcoat + Filled Casting Resin (Bulk Moulding)

Summary table of sanitaryware GRP processes & end product differences

Features	Acrylic + GRP resin backing	ISO NPG Gelcoat + GRP resin backing	ISO NPG Gelcoat + Casting resin
Surface Finish	Excellent (warmer to touch)	Very good	Very good
Durability	Good (surface scratch prone)	High	Very High
Weight	Light	Medium	Heavy
Production Speed	Medium	Low to Medium	Medium
Tooling Cost	High (thermoform & jig)	Low to Medium	Medium
Required Scott Bader Products	Crystic 991PA	Crystic GC 84E PA Crystic 991PA Scott Bader Match Tooling	Crystic GC 84E PA Crystic 400PA Scott Bader Match Tooling
Advantages	<ul style="list-style-type: none">• High Gloss• Scratch resistant• Warmer to touch• Lightweight but rigid• Scott Bader resins have good adhesion to both acrylic & ABS• More cost effective than ceramic• Easy to clean	<ul style="list-style-type: none">• ISO-NPG gelcoat is the standard for sanitaryware due to its excellent hydrolytic stability, UV resistance, & smoothness.• Good gloss level• Very good durability• Can achieve deep colours• More stable cost vs acrylic• More simple process (no thermoforming)	<ul style="list-style-type: none">• ISO-NPG gelcoat is the standard for sanitaryware due to its excellent hydrolytic stability, UV resistance, & smoothness.• Good gloss level• Excellent durability & strength• High density (stone-like-feel)• Can achieve deep colours• More stable cost vs acrylic• Lower factory VoC's than GRP resin backing process
Disadvantages	<ul style="list-style-type: none">• Fluctuating costs of acrylic sheets• Multi-step process requiring thermoforming equipment	<ul style="list-style-type: none">• Less tactile warmth than acrylic• Slowest cycle time of the 3	<ul style="list-style-type: none">• Heavy – not ideal for wall mounted units
Typical End Uses	<ul style="list-style-type: none">• Acrylic + GRP is most commonly used for bath tubs but can be used for showers.	<ul style="list-style-type: none">• Commonly used for commercial application Showers & Sinks.	<ul style="list-style-type: none">• Commonly used for Showers & Sinks that require a more “stone look”

Acrylic sheet + GRP Backing (Thermoformed Acrylic + GRP Reinforcement)

Process:

1. Acrylic sheet (PMMA) is thermoformed over a mould at ~150°C
2. The formed sheet is placed in a backing jig or mould
3. GRP backing is applied — typically by chopper spray application – resin filled up to 50% with CaCO₃
4. Parts are then left to cure, (post-cure is optional)
5. Edges are trimmed and polished

Materials:

- Acrylic sheet (3-5 mm, extruded PMMA)
- Resin (**Crystic 991PA**) + upto 50% CaCO₃
- E-Glass Rovings through chopper spray machine

**Note – An alternative grade Crystic 990PA is available for ABS back up applications if required.*

ISO-NPG Gelcoat + GRP resin backing

Process:

1. ISO-NPG gelcoat is sprayed into the open mould
2. Gelcoat is left to cure in the mould
3. GRP backing is applied — typically by chopper spray application – resin filled up to 50% with CaCO₃
4. Parts are then left to cure, (post-cure is optional) and then demoulded
5. Edges are trimmed and polished

Materials:

- ISONPG Gelcoat (**Crystic GC 84E PA**)
- Resin (**Crystic 991PA**) + upto 50% CaCO₃
- E-Glass Rovings through chopper spray machine
- Scott Bader Match Tooling system can be used to create high quality moulds

ISO-NPG Gelcoat + Casting Resin

Process:

1. Mould is coated with ISO-NPG gelcoat and left to cure
2. The mould cavity is filled with a heavily filled resin (70 - 80% - see typical mix below)
3. Curing happens in a closed or semi-closed mould
4. Demould and polish

Materials:

- ISONPG Gelcoat (**Crystic GC 84E PA**)
- Resin (**Crystic 400PA**) + upto 70-80% CaCO₃, Al(OH)₃, CaSO₄
- Scott Bader Match Tooling system can be used to create high quality moulds