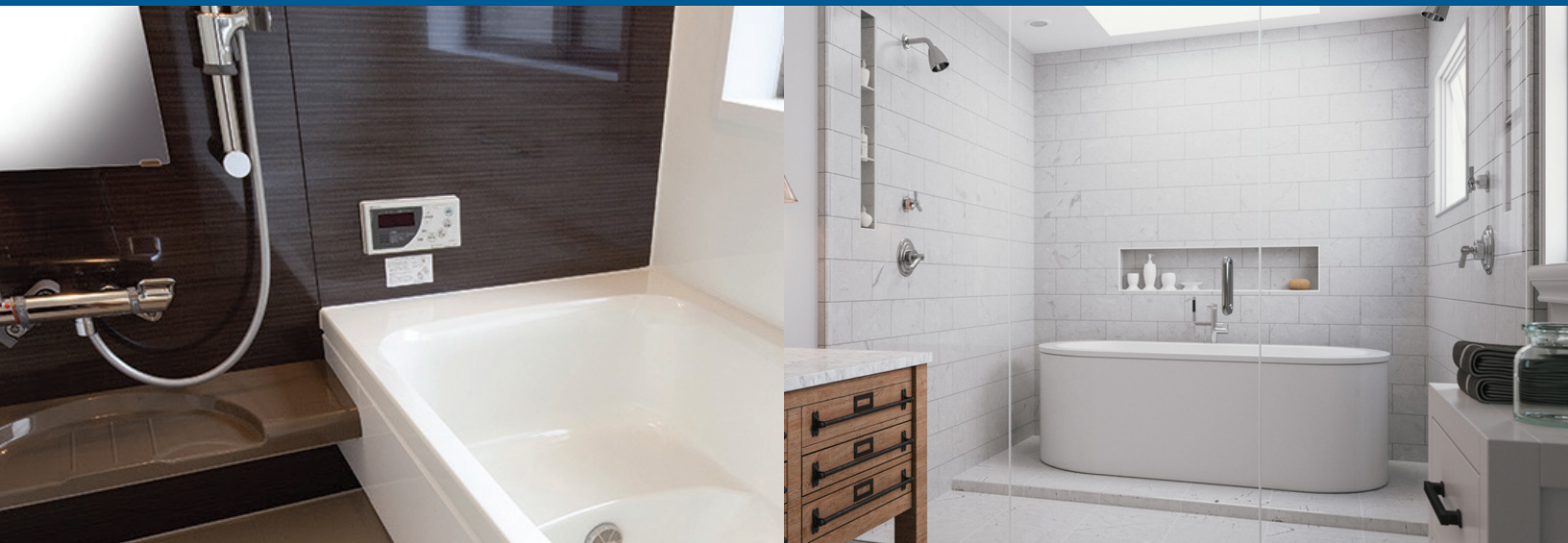




SHAPING THE FUTURE OF BATHWARE with AQUAPRO® A-20

THROUGH MATERIAL STRENGTH
AND APPLICATION EXPERTISE





SPARTECH SANITARYWARE INTRODUCTION

Spartech's performance and appearance engineered plastics substrates for baths and kitchens provide durability and aesthetic appeal. Your building project will have the right material, texture and color – all at the right price and delivered to meet your exact timelines.

- **Bathware:** AquaPro®, SurfaceChoice®, Acrylloy™, Korad®, ABS, HIPS, High Gloss HIPS
- **Grab bars for bath and shower:** Polycast® acrylic rod
- **Lighting:** Polycast® acrylic tubes
- **Kitchens:** SurfaceChoice®, Acrylloy®, Korad™

AQUAPRO® A-20

MULTI-LAYER ACRYLIC

The AquaPro® product line features a uniquely engineered multi-layer thermoplastic composite sheet combining the appearance, chemical and weather resistance of specially formulated acrylic resins with the stiffness, impact strength and thermoforming characteristics of ABS. The outstanding balance of properties are designed for thermoformed sanitary ware applications including bathtubs, bathtub liners, bath wall surrounds, accessories and sinks.

FEATURES

- High gloss, excellent appearance
- Good chemical resistance and scratch resistance
- Impact resistant ABS substrate
- Available in smooth and haircell textures
- Granite style and other decorative laminates available
- Able to match multiple colors
- Available using decorative printed laminates
- Used in a stand-alone structure or as part of a product reinforced with rigid components

TYPICAL PROPERTY DATA

Properties	Test Method	Value	UOM
Specific Gravity	ASTM D-792	1.11	n/a
Izod Impact (Notched) 72°F	ASTM D-256	4	ft-lbs/in
Tensile Strength	ASTM D-638	5,200	psi
Flexural Modulus	ASTM D-790	280,000	psi
Rockwell Hardness (R Scale)	ASTM D-785	95	n/a
Heat Deflection Temperature @264 psi	ASTM D-648	190	°F
Instrumented Impact - Total Energy at 72°F	ASTM D-3763	14.5	ft lbs
Instrumented Impact - Total Energy at -30°F	ASTM D-3763	7.7	ft lbs
Gardner Gloss	ASTM D-523	85	Gloss Units-60°

GENERAL THERMOFORMING GUIDELINES

1. Keep **AquaPro**[®] wrapped and dry at all times to reduce moisture absorption in sheet. Store in a cool dry place.
2. Prior to thermoforming, sheet must be clean and dry.
3. Double-sided (top and bottom) heating is strongly recommended for all sheet over .200" thick. One-sided ovens should be avoided for thick sheet, but may be used for .125" sheet and below with generally good results.
4. The objective during the thermoforming process is uniform heat throughout the sheet, with temperature at the core at the correct thermoforming temperatures—around 350°F, or slightly hotter—without burning or blistering the sheet surfaces. Forming too cold adversely affects material distribution and increases the level of residual stress in the sheet.
5. Tool temperatures prior to forming **AquaPro**[®] should be a minimum of 150°F.
6. During heating, the ideal surface temperature for the acrylic surface is 340-360°F. While the surface may withstand slightly higher temperatures for a brief period, surface blistering may occur.
7. During heating, the ideal surface temperature of the ABS surface is 350-375°F.
8. Realization of these temperatures is an indication that the entire sheet has been uniformly heated to the appropriate thermoforming temperatures.
9. Due to the variable nature of thermoforming heating elements, temperature zoning, external conditions, etc., precise heat cycle times will vary also. As a general rule, heating cycles of approximately one mil per second should be a good starting point (.275" thick **AquaPro**[®] = 275 seconds = 4.6 minutes).
10. Part removal temperature should be a maximum of 140°F.
11. While some manufacturers are able to leave the polyethylene masking film on during thermoforming, the process is not always successful. Variations or excess temperatures can cause sticking; air entrapment between the film and the acrylic surface can cause surface defects, particularly in darker colors. Individual testing must precede processing.
12. Spartech[®] Plastics technical assistance is available to all of our thermoforming customers. Please contact your local sales representative.

Disclaimer: The values shown above are representative of values that have been obtained in the testing of sheet samples of AquaPro[®] A-20 produced in various colors including visual effects (metal flake) grades. Colorants and materials added to provide visual effects can alter some values. Each user of the material should conduct their own testing and evaluations to determine the effectiveness, safety, and suitability of the material for its particular use, specifically to include testing of prototype parts in their intended end use.

GENERAL CHEMICAL RESISTANCE CHARACTERISTICS

The acrylic surface of AquaPro® A-20 offers good resistance to a variety of household cleaners and other chemical environments. Chemical resistance of all acrylics can vary dramatically due to stress level, temperature, chemical concentration, etc. All final parts should be tested with specific chemical exposure appropriate to the end-use application.

In general, the following chemicals may be used to clean AquaPro® A-20 parts under moderate stress at ambient temperatures:

Calgon® Bath Oil	Glass Plus® Cleaner	Sodium Hydroxide
Clorox® Bleach	Liquid Comet® Cleaner	Sodium Hypochlorite
Fantastic® Cleaner	Mineral Oil	Soft Scrub® Cleanser
Formula 409® Cleaner	Mr. Clean® Cleaner	Spic & Span® Powder
Freon TF Cleaner	Propylene Glycol	Soap & Water

The following chemicals may be used with caution in low-stress and/or brief-duration exposure at ambient temperatures:

Ammonia	Denatured Alcohol (≤50%)	Lestoil® Cleaner
Brake Fluid	Ethyl Alcohol (≤40%)	Lysol® Basin, Tub
Chlorine (10%)	Isopropyl Alcohol (≤50%)	Pinesol® Cleaner
Dow® Disinfectant (Bathroom & Tile Cleaner)	Gasoline	VM&P Naphtha
	Kerosene	

The following chemicals may cause crazing, cracking, discoloration, or dissolving of acrylic and are generally not recommended:

Acetic Acid	Chlorinated Solvents	Turpentine
Acetone	Lacquer Thinner	White Cap® Cleaner
Aromatic Solvents	Lysol® Spray Disinfectant	Xylene
Benzene	Sulfuric Acid	
Butyl Alcohol	Toluene	

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We are a leading building and construction plastics manufacturer that leverages our knowledge of materials, processing, and application development to deliver the highest level of value to our customers



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