

NAS[®] XC

THE IDEAL SOLUTION

UV RESISTANCE. CHEMICAL RESISTANCE.
SCRATCH RESISTANCE.



APPLICATION EXAMPLES

LED LIGHTING



CUSTOMER CHALLENGE

LED Lighting manufacturers need materials with high light transmittance, low haze, and good thermal stability to illuminate both indoor and outdoor spaces.

OUR SOLUTION

The results with NAS XC are clearly stunning. The quality of light diffusion meets the demanding needs of sophisticated commercial and residential environments, at a cost effective price point. NAS XC is the ideal solution for interior LED lighting fixtures and NAS XC UV is ideal for outdoor lighting. Large outdoor spaces enjoy efficient illumination and enhanced UV resistance with NAS XC UV lighting fixtures.

SHEET EXTRUSION



CUSTOMER CHALLENGE

Custom plastic sheet manufacturers face the challenge of developing solutions that meet customers' requirements and bring value into the various industries they serve. The plastic sheet industry comprises a wide variety of end markets and applications including transportation, building and construction, sports and leisure, appliances, and more.

OUR SOLUTION

NAS XC is an excellent solution for extruded sheets requiring high gloss, chemical resistance, scratch resistance, and UV resistance. Its ease of processing and versatility make it ideal for sheet extruders. It can be used in mono-layer and multi-layer structures, providing cost-efficiency and excellent bonding strength to co-extruded sheets with ABS, HIPS, and ASA.

SNEEZE GUARDS / RETAIL BARRIERS



CUSTOMER CHALLENGE

Acrylic sneeze guards are increasingly used in retail settings to protect both customers and staff from virus exposure. These parts must withstand repeated cleaning with disinfectants and remain visually appealing.

OUR SOLUTION

NAS XC is the ideal material choice due to its ability to transmit light, its low structural weight, and ease of fabrication. NAS XC has good scratch resistance and chemical resistance to commonly used household cleaning products, disinfectants and isopropyl alcohol.

APPLICATION EXAMPLES

CUSTOM SHEETS - SPAS AND BATHROOMS



CUSTOMER CHALLENGE

Spa and bathroom applications are a particular challenge due to a high humidity environment. Parts and accessories need to be functional, attractive, and survive constant exposure to moisture, heat, light and cleaning products. Additionally, spa and hot tub applications must often withstand outdoor UV exposure.

OUR SOLUTION

NAS XC UV offers outstanding dimensional stability in demanding environments where moisture is ever-present. Made for outdoor exposure, it survives the rigors of repeated use, and is both scratch resistant and chemical resistant. It can be used in multi-layer structures, and offers incredible design freedom to create innovative models with great performance and aesthetics.

AUTOMOTIVE - INSTRUMENT PANELS



CUSTOMER CHALLENGE

Car designs are constantly improving with new market trends. The automotive industry is continuously working on innovative solutions to improve comfort and design, while meeting stringent industry standards on UV, chemical and scratch resistance. For parts such as PRNDL covers, instrument panels, cluster bezels, light covers, and trims, consumers expect both performance and aesthetics.

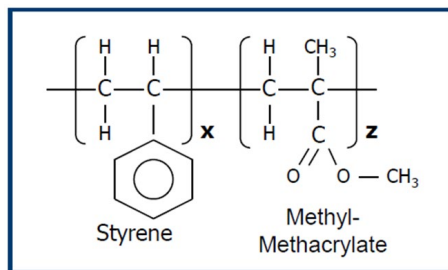
OUR SOLUTION

NAS XC UV has outstanding optical properties in addition to meeting major car manufacturers industry standards. Offering ease of processing for both extrusion and injection molded parts, and the benefit of optional drying, NAS XC UV results in lower utility costs and time savings for parts with sparkling clarity and gloss.

NAS SMMA



What is NAS?



- NAS is an amorphous random copolymer of styrene and methyl methacrylate that is clear and stiff.
- NAS XC is the ideal solution for applications that need UV, scratch, and chemical resistance.
- NAS XC and NAS XC UV are the latest additions to the INEOS Styrolution transparent specialties portfolio, "XC" standing for "xtra clear" and "XC UV" standing for "xtra clear with enhanced UV stability".
- NAS XC UV provides enhanced UV resistance and UV stability for outdoor applications.

PRODUCTS AND TECHNICAL DATA

Properties	NAS [®] 21	NAS [®] 30	NAS [®] 90	NAS [®] XC	NAS [®] XC UV
Description	General Purpose	General purpose with enhanced clarity and flow	Highest molecular weight increased toughness	Excellent clarity	UV-stabilized grade enhanced clarity and UV resistance
MFR (200°C/5 kg)	1.9 g/10 min	2.2 g/10 min	1.5 g/10 min	1.6 g/10 min	2.0 g/10 min
Izod notched impact strength (23°C)	0.4 ft-lb/in	0.4 ft-lb/in	0.4 ft-lb/in	0.4 ft-lb/in	0.4 ft-lb/in
Tensile stress at yield (23°C)	8,400 psi	8,800 psi	8,100 psi	9,300 psi	9,300 psi
Tensile Modulus	470,000 psi	470,000 psi	490,000 psi	470,000 psi	470,000 psi
Elongation break	2.1%	2.3%	2.1%	3%	4%
Flexural strength (23°C)	14,100 psi	14,600 psi	14,500 psi	14,900 psi	15,000 psi
Flexural modulus (23°C)	450,000 psi	460,000 psi	490,000 psi	460,000 psi	450,000 psi
Haze	0.3%	0.3%	0.3%	0.3%	0.3%
Vicat softening temperature (B/1 (120°C/h, 10N))	222 °F (106 °C)	220 °F (104 °C)	207 °F (97 °C)	221 °F (105°C)	219 °F (104°C)
HDT	200 °F (93 °C)	200 °F (93 °C)	176 °F (80 °C)	207 °F (97°C)	210 °F (99°C)
Specific gravity	1.08	1.09	1.07	1.11	1.10

EASE OF PROCESSING – INJECTION MOLDING AND EXTRUSION

BENEFITS	PERFORMANCE	ADVANTAGES OVER PMMA
Specific gravity	5-10% lower	= More parts per pound vs acrylic
Cycle time	5-20% faster	= Better machine & resource utilization
Process temperature	10-50°C cooler	= Lower utility cost, faster cycling
Scrap rates	< 2% - excellent	= Less rework, significant cost savings
Regrind use	Up to 50% better	= Cost savings
Drying	Optional	= Lower utility cost, time savings
Color	Water-clear	= Lower color loading costs

Material savings
7 - 15%

Manufacturing savings
8 - 20%

PRODUCTS AND TECHNICAL DATA

CHEMICAL RESISTANCE

Chemical Resistance Results NAS XC Compared to PMMA

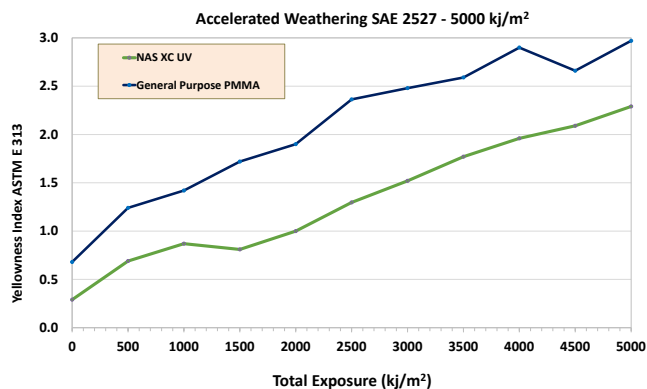
Chemical Agent	Units	NAS XC	PMMA
Automotive cleaning products	Damage, Δ Haze %	✓ None	1.1 ✓ None
Window cleaner	Damage, Δ Haze %	✓	0.5 ✓ None
SPF50 suntan lotion	Damage, Δ Haze %	✓ Slight stain/color change	2.7 ✓ Slight stain/color change
Ethyl alcohol	Damage, Δ Haze %	✓ None	0.2 ✓ None
Disinfectant and cleaning sprays	Damage, Δ Haze %	✓ None	0.1 ✓ None
Bleach	Damage, Δ Haze %	✓ Slight haze/stain	1.1 ✗ Heavy haze/stain
60% Acetone	Damage, Δ Haze %	✓ None	0.2 ✓ None
Isopropyl alcohol (100%)	Damage, Δ Haze %	✓ None	0.1 ✓ None

SCRATCH RESISTANCE

Mar resistance – gloss	NAS XC UV	PMMA
Original gloss	134.9	122.5
Marred gloss - 10 strokes	106.6	100.2

NAS XC is the ideal solution for great gloss and outstanding scratch resistance.

EXTERIOR UV RESISTANCE



UL COMPLIANT



Request a sample of NAS® XC and NAS® XC UV from your account manager.