

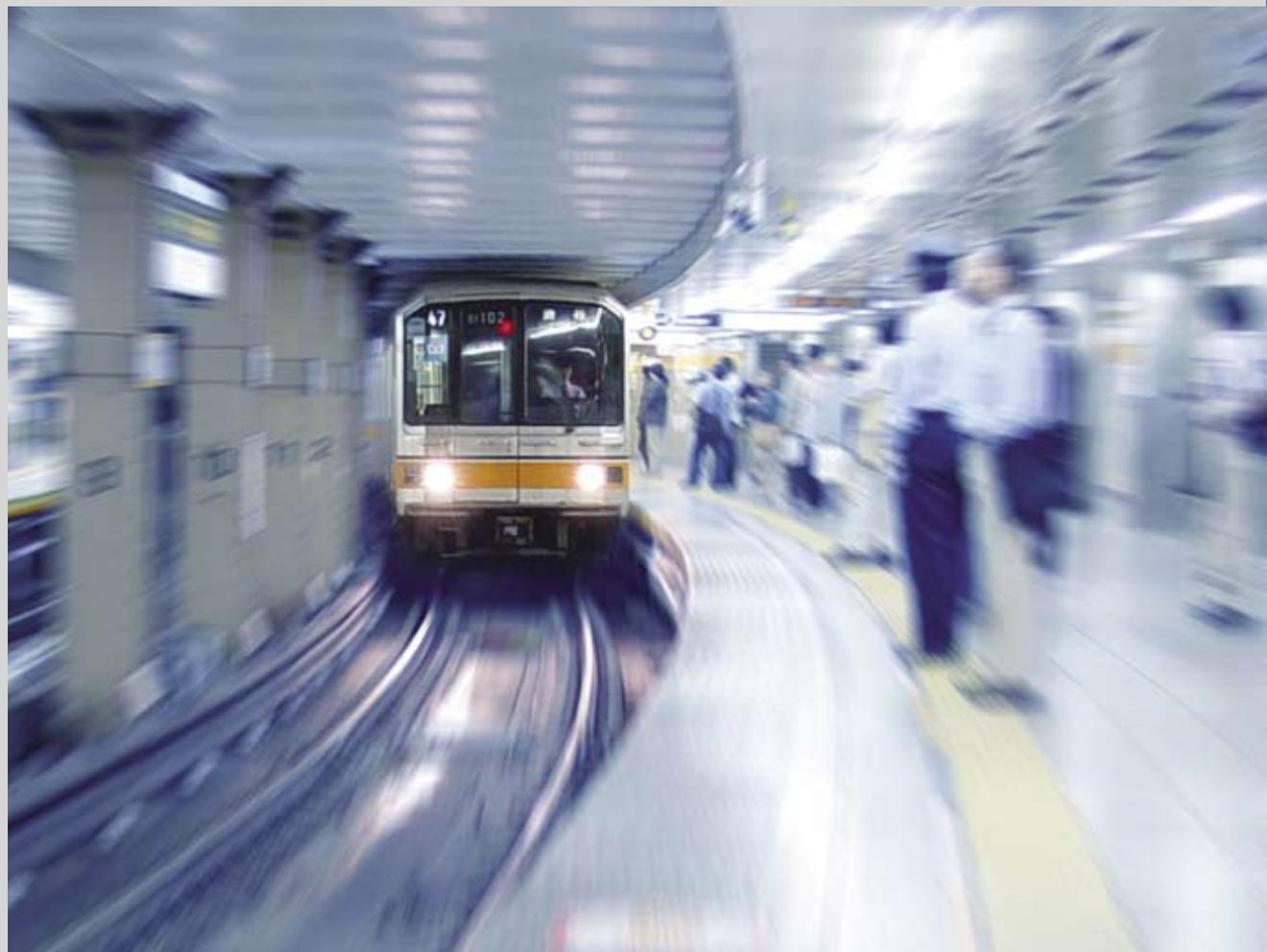


LUXURY AND DURABILITY

Soft Touch

RESINS FROM INEOS ABS

INEOS ABS



LUXURY
for the extremes

Soft Touch Resins for the Sheet Extrusion Market



Lustran® ABS ST4600 and Centrex® Weatherable ASA ST4800

The luxurious look and feel of leather and vinyl for applications that require toughness and durability. Soft Touch resins are the ideal choice for a wide range of finished cockpit, trim and accessory components used in interior and exterior applications that combine the soft feel of textured leather and vinyl with the demands of heavy use or weatherability.



Centrex ST4800 for Exteriors

The low-gloss, Soft Touch resin for exterior applications, Centrex weatherable polymers exhibit very good color stability and resistance to weathering in outdoor applications. Centrex Soft Touch technology is built on the successful 20-year history of our Centrex product family. As a co-extruded cap over ABS, Centrex ST4800 ASA resin delivers the same outstanding physical property protection, durability and weatherability, especially for tough recreational and marine applications.

Lustran ST4600 for Interiors

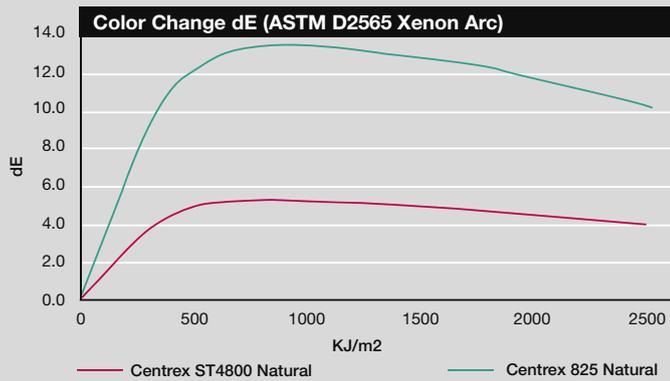
The Lustran product line has a strong reputation in the plastics industry for its processing ease and consistent quality. Now Lustran ST4600 has added a new dimension to Lustran with a look and feel that resembles textured leather and vinyl. The new low-gloss, Soft Touch resin is specifically designed for interior applications where there is no exposure to direct UV light.

The Soft Touch look and feel of Lustran opens endless application possibilities by offering a value-added means to differentiate your end products.

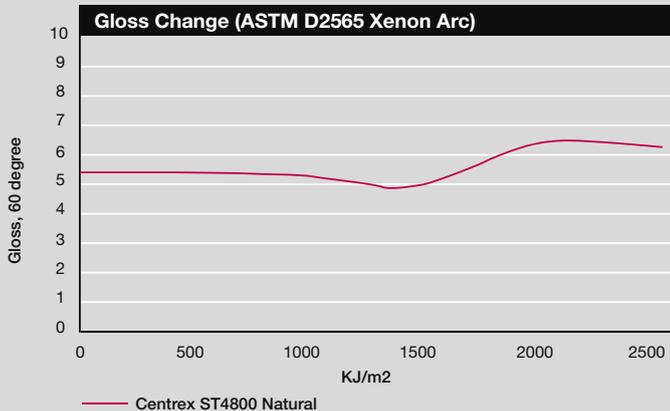
Centrex ST4800 Weatherability



Centrex ST4800 offers excellent weatherability performance and will retain a low-gloss look over time. A minimum 20 mil Soft Touch cap is recommended after thermoforming to maintain the Soft Touch feel and ensure substrate protection.



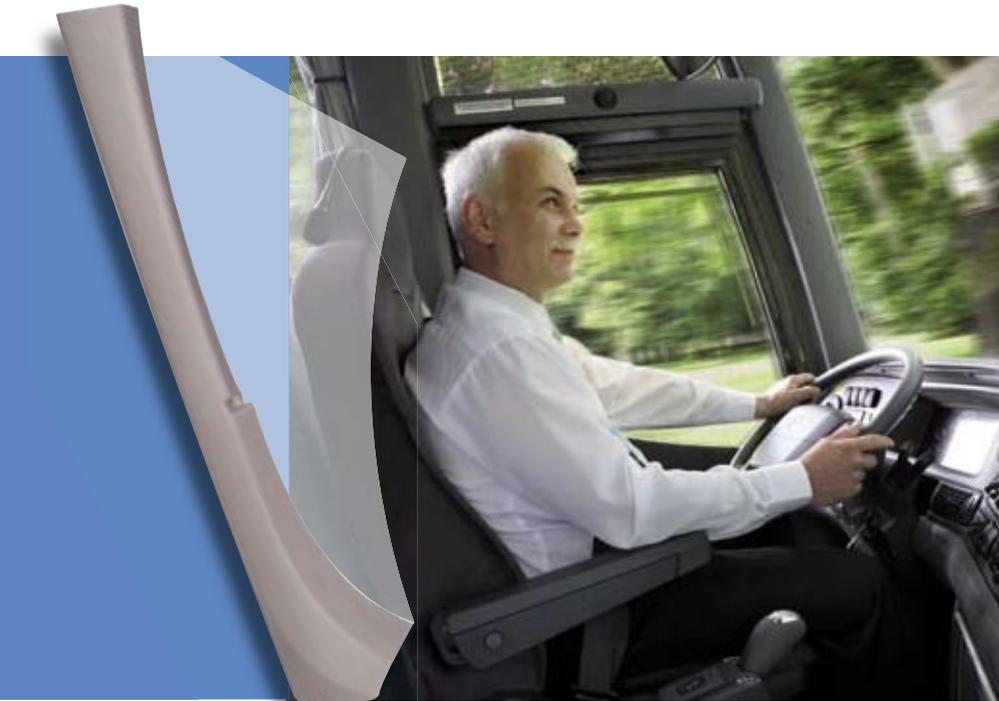
Lustran ST4600 is excellent for commercial trucking, giving the soft look and feel to upgraded driver sleeping and storage areas.



ASA weatherable resins are not all created equal. Centrex stands out with its record of field-tested commercial applications that have resisted outdoor exposure for many years. Centrex weatherability provides superior protection for your resin systems, delivering excellent color fade resistance properties coupled with chemical resistance and processing ease.

Our customers come back to us for these difficult outdoor product applications because they know that Centrex is a superior time-tested formulation.

Key Properties



Lustran ST4600 adds a new dimension with a look and feel that resembles textured leather and vinyl. The low-gloss, Soft Touch resin is designed for interior applications where there is no exposure to direct UV light.

Properties	Procedure	Unit	Lustran ST4600 Centrex ST4800
MFI 230°C, 3.8 kg	ISO 1133	gm/10 min.	15
Gloss (60°)	ASTM D523	%	10
Shore Hardness	ASTM D2240	D	46
Multiaxial Impact	Internal	J (E_{max} / E_{fail})	6/8
Flammability	ISO 3795	mm/min	42

Note: These items are provided as general information only. They are approximate values and are not considered part of the product specifications.

- Properties are measured on injection molded ISO specimen except where noted
- Individual samples may vary from average reported

Key Properties

- Soft, tactile feel
- Textures and leather-like look
- Natural and colors available
- Low gloss
- High processability for lower costs
- Co-extrusion or injection molding
- Thermoformable
- Centrex weatherability (ST4800)
- Adhesion to Lustran 752 ABS substrates
- Recycle regrind into substrate for lower costs
- Better manufacturing cost profile than vinyl



Soft Touch Processing Guide



Drying

Drying prior to processing is recommended in a desiccant dehumidifying hopper dryer. An inlet air dew point of -20°F (-29°C) or below is recommended to achieve a moisture content of $\leq 0.1\%$. The drying temperature should not exceed 150°F to prevent pellets from fusing in the dryer. Drying at 150°F for 4-6 hours is usually sufficient.



Processing

Centrex ST4800 or Lustran ST4600 can be co-extruded over ABS, with a minimum recommended cap thickness of 20 mils in the final part after thermoforming. Because the Soft Touch products are relatively soft flowing, take special care to thoroughly purge the barrel at start-up.



To ensure a proper viscosity balance for an even cap coverage along with the desired balance of gloss and mechanical properties, the recommended barrel temperature settings are $325\text{-}375^{\circ}\text{F}$ ($162\text{-}190^{\circ}\text{C}$), rear to front, for the Soft Touch cap layer. For co-extrusion, a feedback or dual manifold die system can

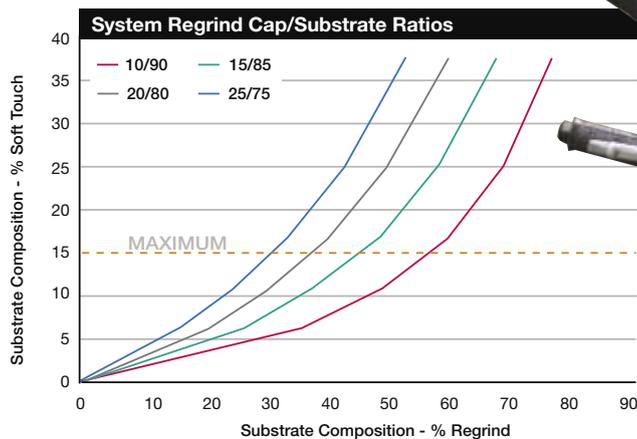
be used with the temperature set at $380\text{-}410^{\circ}\text{F}$ ($193\text{-}210^{\circ}\text{C}$). Recommended temperatures for a standard S-wrap roll stack are $160\text{-}180^{\circ}\text{F}$ ($70\text{-}80^{\circ}\text{C}$). Specific settings are dependent on roll diameter, sheet gauge, and linear speed.

Color Concentrates

The Soft Touch resin is supplied in pellet form as a natural resin. It is imperative that all color concentrates use only virgin Soft Touch material as the carrier resin in order to maintain the proper look, feel, and physical performance of the finished product. For optimum performance, appropriate UV stable pigments should be used for applications requiring weatherability.

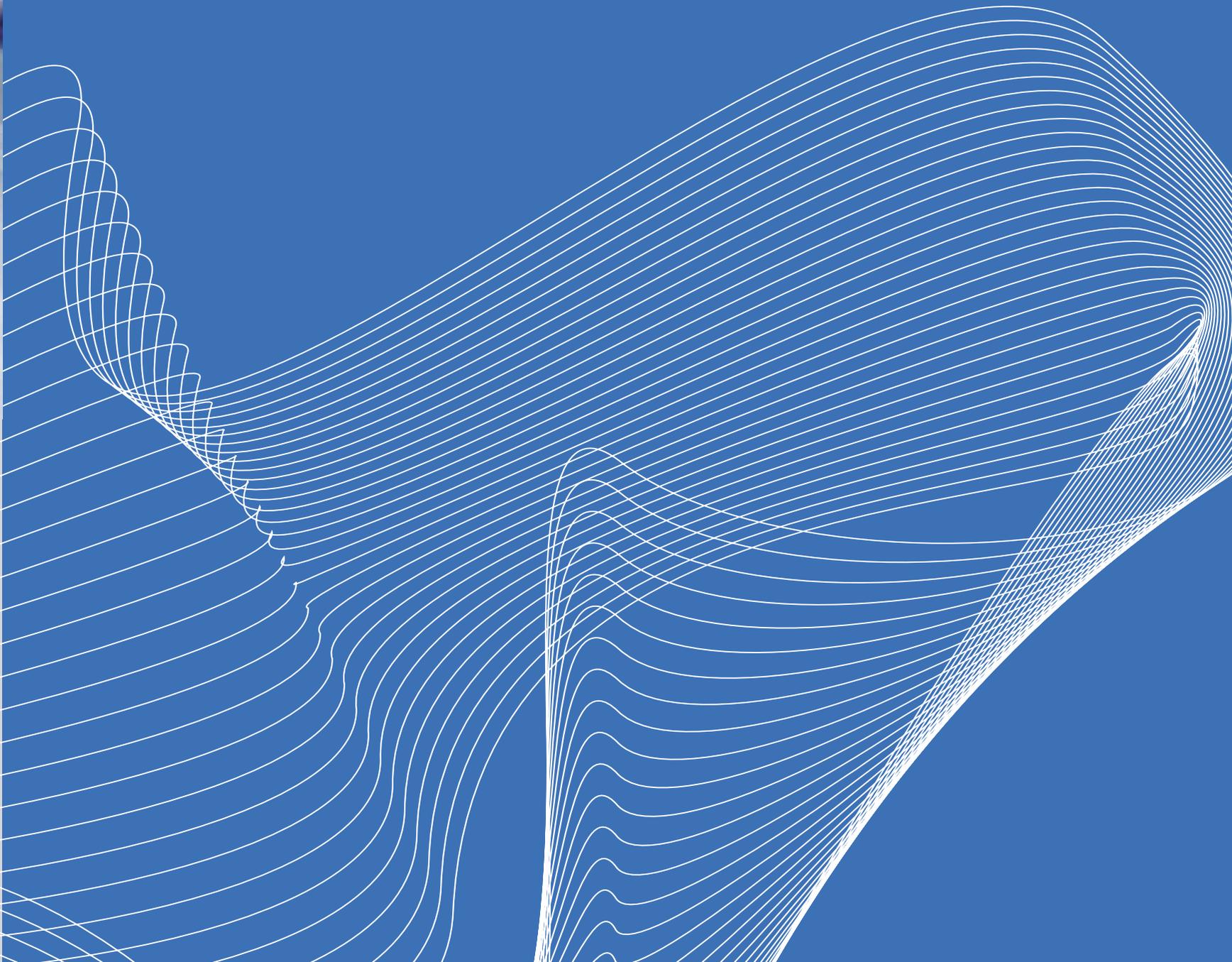
Regrind Capability

Soft Touch resins are very cost-effective processing materials. When using system regrind, up to 15% Soft Touch is permitted into the substrate. For example, for systems with 20% cap (of the total sheet thickness), continuous use of 40% regrind to the substrate is the maximum recommended level.

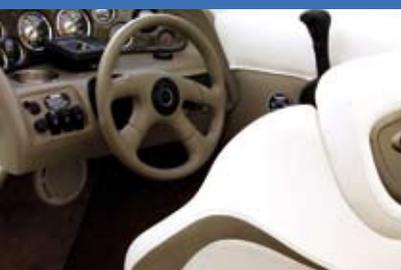


Soft Touch

RESINS FROM INEOS ABS



Health and Safety Information



Centrex ST4800 is an ideal solution for marine contact surfaces around instrument panels for a low gloss, leather texture and appearance.

Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling the INEOS ABS products mentioned in this publication. For materials mentioned which are not INEOS ABS products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be followed. Before working with any of these products, you must read and become familiar with the available information on their hazards, proper use, and handling. This cannot be overemphasized. Information is available in several forms, e.g., material safety data sheets and product labels. Consult your INEOS ABS representative.

All information in this document is believed to be accurate but is made without guaranty or warranty of any kind either express or implied. The user must satisfy himself that our products are entirely suitable for his own purpose and process and user assumes all responsibility through use or application of the information herein. Statements concerning use of our products do not grant a license under any patent and do not recommend the infringement of any patent.

The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations are beyond our control. Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether they are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by us. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance, and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with patents covering any material or its use. No license is implied or in fact granted under the claims of any patent.

INEOS ABS

INEOS ABS (USA) Corporation
356 Three Rivers Parkway
Addyston, OH 45001

Telephone: 1-513-467-2494
Email: LUP-NAFTA@lustran-polymers.com
Internet: www.ineos-abs.com