

ARTICLE

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LUSTRAN® AND NOVODUR® HD ABS – THE INHALER HOUSING RESINS OF CHOICE!

by

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Why use Lustran® or Novodur® HD ABS resins in inhaler housing applications?

Respiratory and drug delivery devices, such as inhalers, comprise one of the largest healthcare segments. Since many of these products are often carried with patients outside the home and hospital, products within this segment need to be aesthetically pleasing, demonstrate excellent chemical resistance, be lightweight, and meet a variety of physical properties. This is the reason why ABS (Acrylonitrile, Butadiene,

Styrene) is a device designer's best choice in these demanding applications.



Figure 1: Celon inhaler

Historically proven / Committed to the future

INEOS Styrolution offers the two most recognized ABS grades used in inhaler production today with their Novodur® HD and Lustran® ABS product lines.

In addition to having superior physical characteristics coupled with visually appealing attributes, INEOS Styrolution and its legacy companies have committed to these product lines to serve the needs of the healthcare market.

These products have been successfully used in inhaler housing devices for decades! In fact, they are commonly referenced on design drawings by the many major medical OEMs who are the leaders in this market space.



Figure 2: Spiromax inhaler

Due to the high costs related to material qualification and adherence to strict compliance regulations around the world, it is no secret that medical device designers prefer to use products having a consistent formulation, a proven reputation for being successfully applied in target applications, and long-term availability. Novodur® HD and Lustran® ABS products fulfill these needs.

Demonstrating commitment to the future, both grades are offered with INEOS Styrolution's Full HD package. This means that in addition to having a wide range of compliance documentation, both product lines are offered with

an up to 36 month Notification of Change (NOC) commitment, as defined by the formulations filed under corresponding Drug Master Files (DMF) filed with the FDA.

This gives customers the confidence that their investment in the housing application is secure. Further, with the plethora of regulatory documents available such as: USP Class VI, various ISO 10993 standards, EU and Japanese Pharmacopeia, and US/EMA food contact statements, customers know that these grades can be used safely in a variety of critical applications.

Visually Pleasing to the End User

Inhalers are used by people of all ages. In many cases, these devices need to be carried by the individual routinely to address a breathing issue. Therefore, it's important for designers to ensure that the final application is lightweight, portable, and visually appealing for those individuals who will need to carry it.

Inhalers produced out of Lustran® ABS or Novodur® HD are known for their excellent appearance. The finished parts retain a pleasing high gloss surface and the resin can be colored to virtually any color the designer can imagine.

Processing/ physical advantages

Lustran® ABS and Novodur® HD ABS are easy to process, with fast cycle times. They are easy flowing materials which can be molded into many complex shapes and designs.



Figure 3: Spiromax dry powder inhaler

These ABS grades come with an excellent balance of properties such as impact strength, flexural modulus, and tensile strength. Further, the excellent dimensional stability of Lustran® and Novodur® HD aid in assembly as injection molded matched halves easily fit together. Bonding between parts can easily be achieved using ultrasonic welding, solvent bonding, or commonly used adhesives.

Also, when additional part stiffness is desired, Novodur® HD M203FC G3 is the answer. This is the only glass-fiber reinforced ABS grade available on the market that comes with a variety of compliance documentation.

Medical parts molded out of Lustran® ABS or Novodur® HD can be successfully sterilized using Gamma, Ethylene Oxide, NO₂, or E-beam. The sterilized parts have excellent property retention. In addition, Lustran® ABS and Novodur® HD have great environmental stress crack resistance (ESCR) to common healthcare disinfectants and cleaners, including bleach, betadine, glutaraldehyde, lipids, and isopropyl alcohol.

Summary

By selecting Lustran® 248FC or Novodur® HD M203FC grades for inhaler housing applications, medical device designers ensure that they will get proven quality material,



Figure 4: Boehringer inhaler



with a long successful history in numerous inhaler applications. Designers can also draw comfort from knowing that these products are: 1) safe since they are compliant to a multitude of regulatory standards, 2) aesthetically pleasing due to its excellent dimensional stability and surface appearances, and 3) can withstand the external rigors associated with qualifying medical devices -- such as exposure to various sterilization techniques and to typical medical cleaners and disinfectants. Lustran® 248FC and Novodur® HD M203FC have been and will continue to be the market leaders for these applications.



Figure 5: Boehringer inhaler

About the author

Lisa Lindsley is a Healthcare Market Development Manager at INEOS Styrolution, a position she has held for the past two years. She works directly with healthcare OEMs, as well as supports our distribution accounts and their medical OEM business.

Lisa started her career with Monsanto in 1985 and spent close to 30 years in Technical Service, providing processing support to both extrusion and injection molding customers.

Lisa received a BA in Chemistry from Niagara University, Niagara Falls, NY, and an MBA from Rensselaer Polytechnic Institute, Troy, NY.