

ENDURING VALUE BUILT-IN

Styrenic solutions for the construction industry

INEOS
STYROLUTION

Driving Success. Together.

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IMAGINE

AN INDUSTRY

TO BUILD ON

Lars is Chief Architect for the largest home construction project ever in Scandinavia, a whole new neighborhood made from scratch. Not only does he need to balance cost, high quality and aesthetics in his plans, he must also incorporate state-of-the-art energy saving materials. Styrenics give Lars that combination of durable performance and affordable flexibility, so that every family can feel more comfortable and warmer in their new home.

“WHAT ARE THE UNIQUE PROPERTIES OF STYRENICS THAT MAKE THEM SO ATTRACTIVE TO THE CONSTRUCTION INDUSTRY?”



Picture: Lars Dombrowski/LD

LAYING NEW FOUNDATIONS

In the construction industry, trends in global production and consumption are driving demand for new materials: ones that enable enhanced endurance, greater affordability, increased choice and better color retention. Meanwhile, increasing wealth is creating new consumers, as well as fuelling a desire for customized products. In addition, transformations in work and lifestyle are reshaping living patterns, while regulation and innovation are making performance a watchword for everyone.

AFFORDABLE INNOVATION

Styrenics are a family of unique polymers with a broad range of applications – from decking, automotive trim and laser printers, to inhalers, refrigerators and toys – making styrenics one of the world's most important thermoplastics. The balanced performance of such properties as excellent aesthetics and true color consistency makes styrenics attractive to designers and manufacturers at every level. Their superior processing abilities also make changes in design or lower volume production simpler and more cost-effective – one big reason styrenic solutions are being used in ever more applications for the construction sector.

In every global market for construction, the value chain is becoming substantially more complex. For everything from aesthetics and haptics to the bottom line, the only fixed point is change itself.

INEOS Styrolution is a worldwide leader in styrenics and a reliable global supplier of styrenic solutions for construction applications. As a result, INEOS Styrolution has a deep understanding of the variety of needs at different points in the construction value chain, as well as expertise in environmental concerns, regulatory standards and financial pressures. With a long-term commitment to innovation, INEOS Styrolution offers opportunities for product co-development right from the first draft of a new idea. This is backed by significant resources dedicated to the development of construction solutions for tomorrow, to meet the global challenges of today.

DESIRABLE COMMERCIAL PROPERTIES

Some of the reasons styrenics are becoming the polymers of choice for the construction industry:

LOWER DENSITY
 EXCEPTIONAL WEATHERING RESISTANCE
 TEMPERATURE FLUCTUATION RESISTANCE
 LOWER CO2 EMISSION
 WIDE RANGE OF COLORS
 EXCELLENT AESTHETICS
 DURABLE COLOR FASTNESS
 HIGH IMPACT STRENGTH
 SUPERIOR GLOSS RETENTION
 HIGH STIFFNESS
 EASY TO PROCESS
 DIMENSIONAL STABILITY
 GOOD CHEMICAL RESISTANCE
 GOOD HEAT RESISTANCE
 COST-EFFECTIVE INVESTMENT
 SIMPLE TO COLOR
 GOOD UV RESISTANCE
 SCRATCH RESISTANCE
 HIGH MODULUS

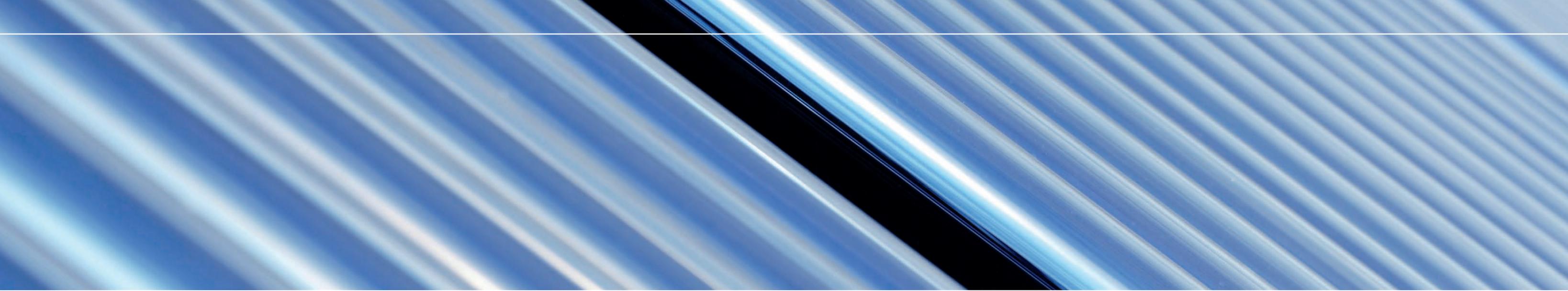


DISCOVER

THE TRUE
**COLOR OF
WEATHERABILITY**

As Head of Engineering for an East Asian manufacturer of natural wood decking, Jan has been urging her company to diversify into co-extruded boards made from recycled materials. INEOS Styrolution showed Jan how an outer cap layer of Luran® S offers affordable low-maintenance and durable color retention. The company now has a new product line, and Jan has another feather in her cap.

“WHY ARE STYRENIC SPECIALTY SOLUTIONS SO ATTRACTIVE TO CONSUMERS, DESIGNERS AND MANUFACTURERS?”



STYRENICS APPLICATIONS

FLOOR-TO-CEILING LOW MAINTENANCE

Styrenics are all around us, whether we realize it or not. For instance, you may enter your home through your front door after a hard day at work, open a window to let in some air, walk out onto the deck and turn on the jacuzzi without ever realizing that each one of these items is built with styrenic specialty solutions – for its high thermal and dimensional stability, superb colorability, excellent resistance to impact, chemicals and UV, etc.

Styrenic construction applications include capstocks for siding, fencing, decking, and pool applications; sheet applications for storm doors and sunroom walls, and injection molding applications for doorlites and solar panel mounts.

Besides their technical advantages, styrenics also help products look better. The outstanding aesthetics bring high color to any construction material. And their design and manufacturing flexibility makes styrenics attractive to engineers and designers, as well. That flexibility is also pointing the way toward future construction applications, such as high-heat piping.

BUILDING TODAY

- Decking/deck boards
- Fencing/railing
- Roofing/roof tiles
- Exterior siding/cladding
- Exterior trim
- Soffit linings
- Storm doors
- Door panels
- Window profiles
- Solar-panel support mounts
- Water drainage
- Sunroom walls
- Outdoor pool steps
- Decorative sheets
- Edge bands
- Exterior film
- Flooring
- Sanitary applications

FOR TOMORROW

Styrenics are as well suitable for many other construction products.

- High-heat piping/ducts
- Window frame inner structure
- Solar panel housings
- Gutters
- Blending with PVC for: improving heat resistance, impact strength and color retention
- Additional capstock applications over exterior PVC applications

SM: styrene monomer
PS: polystyrene
ABS: acrylonitrile butadiene styrene
Specialties: ABS/ASA, ASA, SAN, AMSAN, SBC, SMMA



GLOBAL REACH

AND PROXIMITY TO CUSTOMER MARKETS

⁽¹⁾ INEOS Styrolution acts as exclusive distributor for the INEOS ABS plant in Addyston, Ohio.

INEOS Styrolution is the only global company focused solely on styrenics with a broad product portfolio and proven customized approach to co-development. INEOS Styrolution delivers innovation and professional support with an experienced, personal touch.

A SAMPLING OF STYRENIC INNOVATION IN CONSTRUCTION SOLUTIONS

Luran® S

For functional roofing elements with high color fastness, superior impact strength and best in class weathering resistance

Luran® S (ASA)

Cap layer or blending with PVC, variety of gloss level, color retention, heat and impact resistance

Terblend® S (ASA/PA)

Highly durable weathering resistant ASA/PA grade for reflective backsheets under photovoltaic modules

Luran® S (ASA)

Cap layer or blending with PVC, variety of gloss level, color retention, heat and impact resistance

Luran® S (ASA)

Glass-fiber-reinforced ASA grade with high UV resistance, superior impact strength, dimensional stability, low shrinkage, best-in-class weatherability

Luran® (SAN)

Cap layer or blending with PVC, variety of gloss level, color retention, heat and impact resistance

Luran® S (SAN)

Glass-filled SAN for inner core structure of window profile as a replacement of metal with good stiffness, dimensional stability and lower thermal conductivity

Novodur® P2MC (ABS)

For chromeplating

Styrolux/Styroxflex (SBC)

Transparent modifier or additive for flexible flooring, good compatibility with a broad range of polymers, versatile formulation options

Luran® S

For outdoor decks with an enhanced surface appearance, low-maintenance, weather-resistance, a matte material that never has to be repainted

Novodur® (ABS/HH ABS)

Enhanced heat distortion temperatures



PERFORM

THE RIGHT
**TOOLS OF
THE TRADE**

Lee is Vice President of Procurement for a large building material manufacturing company. His job is to ensure the on-time delivery of critical supplies to the company's globally dispersed factories. Lee purchases solutions from INEOS Styrolution because they offer the most varied portfolio of industry-standard, weathering-resistant styrenic resins, and they reliably arrive on time, every time.

“HOW DOES INEOS STYROLUTION FACILITATE THE DEVELOPMENT AND IMPLEMENTATION OF INNOVATIVE CONSTRUCTION SOLUTIONS?”

HOW INEOS STYROLUTION SERVES YOU

PERFORMANCE ACCORDING TO PLAN

INEOS Styrolution invests in the success of its customers. To grow customer value, INEOS Styrolution offers exceptional global presence, reliability and sustainability. With innovations ranging from high quality plastic design and durable colors to an expanding array of alternatives to keep customer costs low, INEOS Styrolution R&D offers state-of-the-art materials solutions.

Simply put, INEOS Styrolution provides customers with the broadest styrenic portfolio on the market. Customers can also look forward to the world's largest steady supply of cost-efficient, high quality products and impeccable aesthetics. Whatever the challenge, INEOS Styrolution provides a solution, from cutting-edge customized specialty products for premium branding, to standard products for generic applications.

AT YOUR SERVICE – UNPARALLELED CUSTOMER SUPPORT

Unprecedented service is another factor that sets INEOS Styrolution products apart:

ASA COLOR
matching for window, tile and decking applications

ENHANCED QUALITY CONTROL PROCESSES
ISO 9001

ON-SITE PROCESSING SUPPORT

LONG-TERM GLOBAL SUPPLY SECURITY

HIGH LEVEL OF PRODUCT CUSTOMIZATION
possible per requirements

**DEDICATED QUALITY
AND TECHNICAL TEAMS**

**REGULATORY
& COMPLIANCE SUPPORT**

INNOVATIVE PORTFOLIO

INEOS Styrolution solutions
for the construction industry also include::

- **Luran® S** is the benchmark styrenic polymer for weather resistance that stands for property retention, high UV resistance and durable color fastness in outdoor applications
- **Luran® (SAN)** glass fiber reinforced for high modulus profiles as a metal replacement
- **Luran® HH (AMSAN)** blending with PVC to improve heat resistance
- **Terblend® S (ASA/PA)** is a blend of ASA acrylonitrile styrene acrylate with polyamide that gives higher UV resistance and better color fastness, while maintaining easy processing, high impact strength and a matt surface appearance
- **Novodur® HH (HH ABS)** blending with PVC to improve impact and thermal stability in piping applications
- **UV packages** – SPF30/SPF50 packages for styrenic resins to maintain color fastness and long-term surface quality retention

COMPREHENSIVE RANGE

Other INEOS Styrolution solutions include::

- **Styrolution® PS (GPPS/HIPS)**
- **Terblend® N (ABS/PA)**
- **Novodur® Ultra (ABS/PC)**
- **NAS® (SMMA)**
- **Zylar® (SMMA/SBC)**
- **Terlux® (MABS)**
- **Styroflex® SBC** (styrene butadiene block copolymers)



COLLABORATE

COLLABORATING
**FOR MUTUAL
BENEFIT**

With a wealth of sunshine, the potential for solar energy in Italy is enormous. Hoping to exploit a niche in the solar panel market, Leonardo's thermoplastics company kept getting stuck on the problem of aesthetics. Together with INEOS Styrolution, Leonardo's engineers were able to develop a pre-colored solar tile that blended in perfectly with the traditional terracotta roofing tiles. Beautifully generating electricity all day, the tiles became an overnight success.

"WHY DOES THE CONSTRUCTION INDUSTRY PREFER
INEOS STYROLUTION TO OTHER STYRENIC SOLUTION PROVIDERS?"

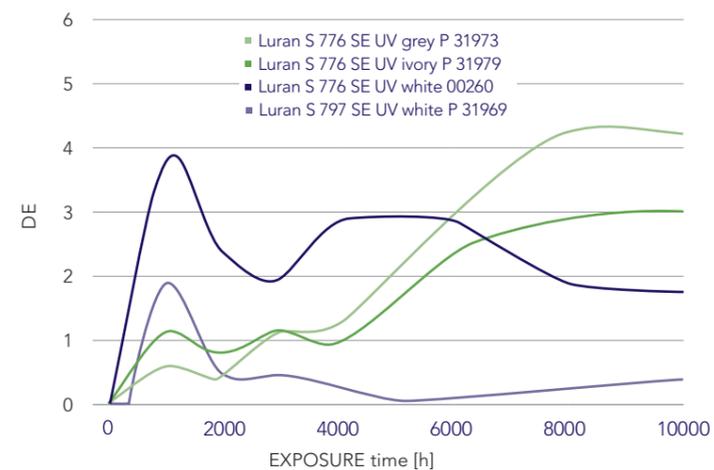
A PIONEER GOES FURTHER WITH A RELIABLE PARTNER

INEOS Styrolution offers global assistance with a personal touch. Whenever specialized innovation is required, INEOS Styrolution works shoulder-to-shoulder with its customers to help them gain a competitive advantage – through best-in-class service, reliable formulations, and customized solutions.

With first-rate technology, leading R&D skills and strong intellectual property and patent positions, INEOS Styrolution is uniquely equipped to ensure that new applications find the right formulation for success. To enable best possible quality and process efficiency, INEOS Styrolution provides testing and technical support in the processing, design and computer simulation phases, as well.

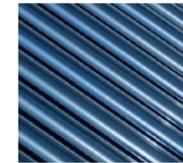
Thanks to its broad experience and processing expertise, INEOS Styrolution is an attractive partner for developing new products, technologies and solutions for electronics customers.

EXEMPLARY COLOR SHIFT OF
LURAN S 776 SE UV AND 797 SE UV OVER TIME



MAKING PROFITS FROM IDEAS

Each new product or application begins with an idea. Together with INEOS Styrolution, customers define how those ideas are transformed into real, innovative and practical items for use in the construction sector.



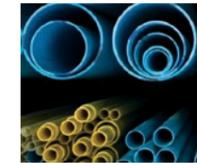
TEXTURE

Styrenics are widely appreciated for their attractive aesthetics. From glossy to smooth to easy-grip/no-slip surfaces: INEOS Styrolution ensures the look, feel and safety are all premium.



SHAPE

Tough, flexible, thin, robust: INEOS Styrolution helps customers find the right blend for the size and requirements of their application.



COLOR

Customers can choose from over 2,500 existing pre-tested colors or use the INEOS Styrolution Color Excellence Center (CEC) to customize any color and confirm its performance.

WHY COLLABORATING WITH INEOS STYROLUTION IS DIFFERENT: STEP BY STEP

1

A construction materials manufacturer has an idea or faces a challenge and communicates this to INEOS Styrolution.

2

INEOS Styrolution listens, reflects and asks questions to further clarify the requirements.

3

INEOS Styrolution draws on its wide expertise and global presence to present the customer with the optimal mix of existing formulations and promising fields of development.

4

INEOS Styrolution delivers customized products for customer sampling and test evaluation according to specifications.

5

Customer and INEOS Styrolution finalize plans to co-develop or collaborate the new product/application.

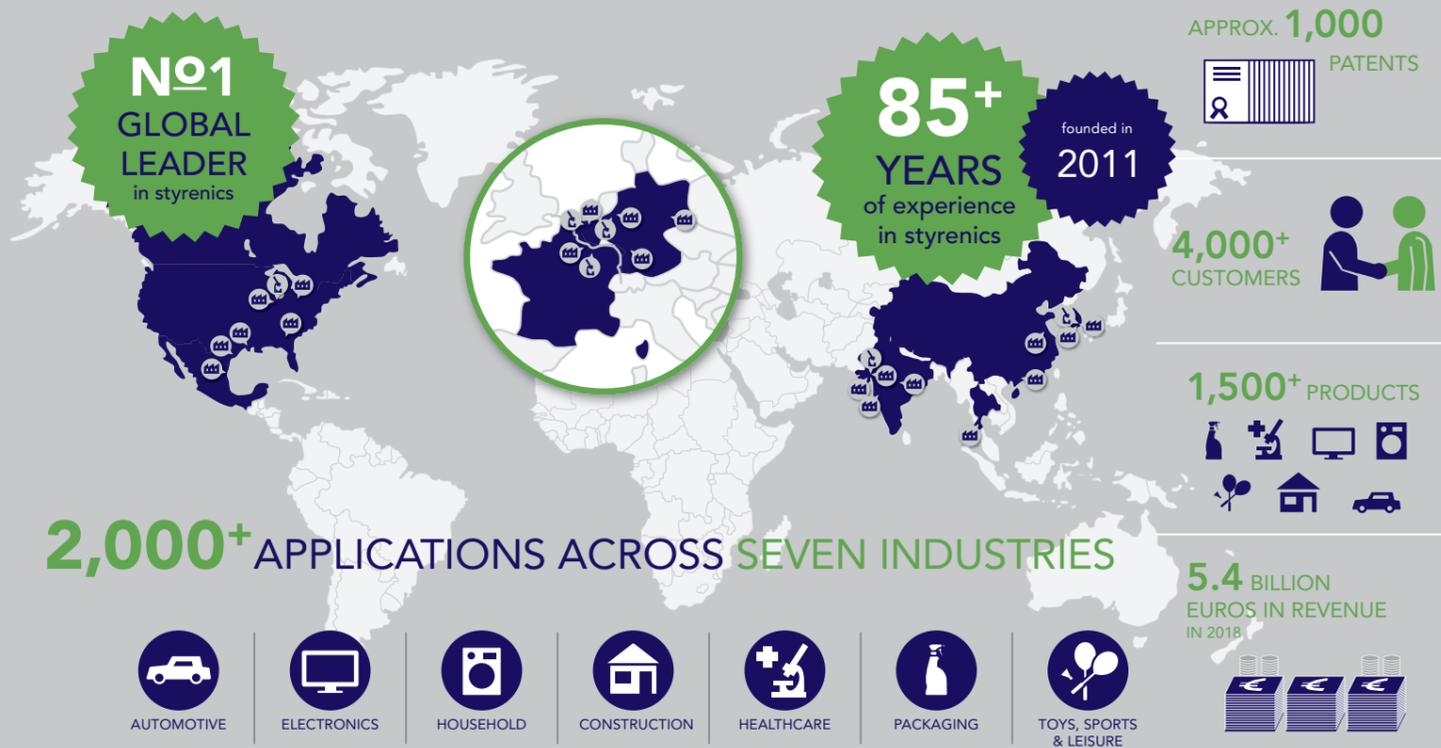
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Commercial production of the construction product begins.

INEOS STYROLUTION AT A GLANCE

INEOS Styrolution is the global leader in styrenics. The company provides products for many everyday applications across a broad range of industries, including healthcare, automotive, electronics, household, construction, toys/sports/leisure, and packaging.

 **3,500** EMPLOYEES |
  **10** COUNTRIES |
  **20** PRODUCTION SITES |
  **6** R&D CENTERS |
  **24** SALES OFFICES



IN CONSTRUCTION, INEOS STYROLUTION HAS A LEGACY OF SUCCESSFULLY SERVING THE INDUSTRY FOR OVER 15 YEARS.

LET'S COLLABORATE

If you would like further details, need assistance in creating your applications, or are curious to explore new possibilities with styrenics, please contact us!

www.ineos-styrolution.com/industry/construction.html

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EXPLORE

If you would like more details, please contact a INEOS Styrolution representative who will gladly provide you with any information you require.

Please also refer to INEOS-STYROLUTION.COM

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