vencorex chemicals

Introducing Tolonate™ X F 450

European Coatings Webinar

June 7th 2021

Introduction to Vencorex

A global leading manufacturer of aliphatic isocyanates.

- A **long history** and the support of **two global leaders**
  - **1916** : creation of Pont-de-Claix Chemical Park in France
  - **2008** : acquisition by **Perstorp** of Rhodia business
  - **2012 :** creation of Vencorex Joint Venture with **GC**

- Headquarter and R&D in France
- Global commercial presence
- Manufacturing sites in France, USA and Thailand

- Shaped by a culture of **INNOVATION**
- Recognized **Tolonate™** and **Easaqua™** brands.

Vencorex is committed to sustainable development

OSHAS certification
Responsible Care

ISO 14 001
ISO 50 001

Environmentally-friendly grades
Global product stewardships

EcoVadis Platinum award

Code of Conduct
CORE values

Market trends in the coating industry

The coating industry has been working on developing sustainable solutions for several years in order to:

- address consumers' expectations
- answer principal requests for eco-friendly and responsible products
- provide safe and easy-to-use products to end-users
- comply with VOC regulations and have a positive impact on our environment.

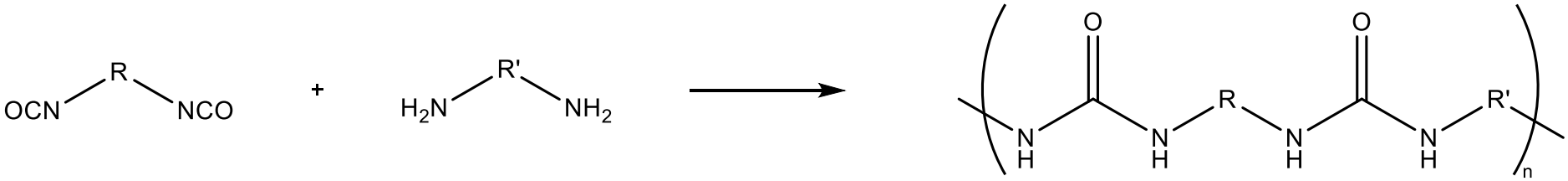
Directions

Examples of solutions to meet sustainability requirements with isocyanate-based formulations

- **Low VOC** or **solvent-free** formulations (low viscosity raw materials, …)
- **Fast drying** coatings to **reduce** the energy consumption and CO_2 emission while improving the **productivity**

Aliphatic polyureas

Polyurea technology

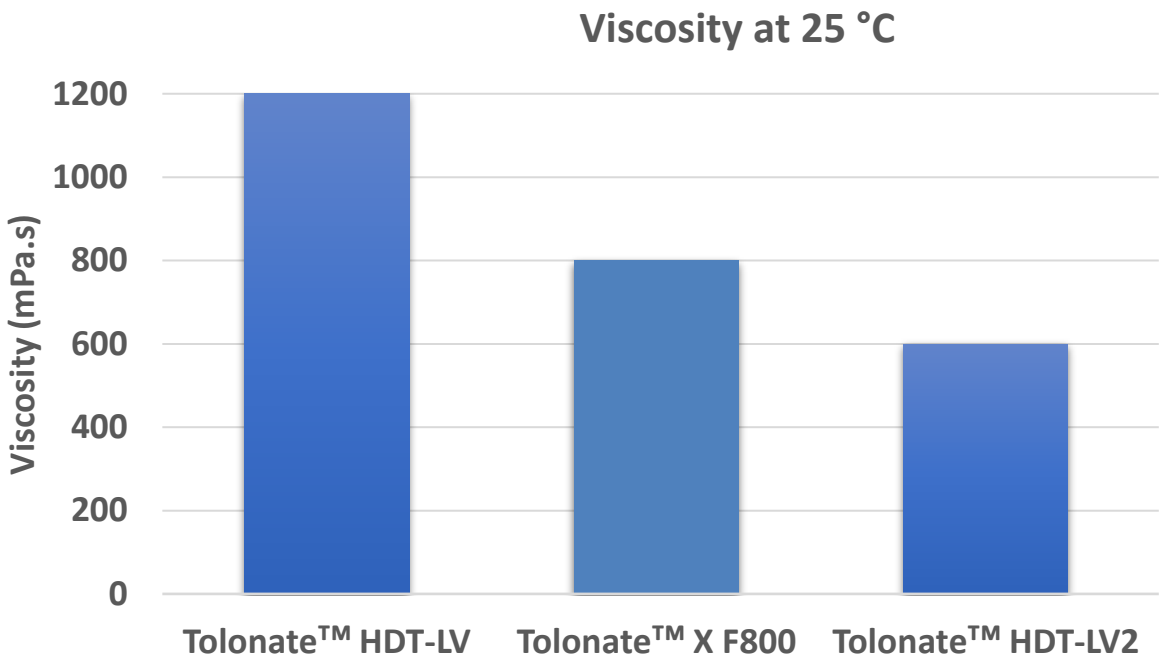


Isocyanate- and amine-functional structures can be of aromatic or aliphatic nature.

Shortcomings of aliphatic polyurea / polyaspartics are:

- Short pot-life
- Brittleness
- Sensitivity to ambient humidity

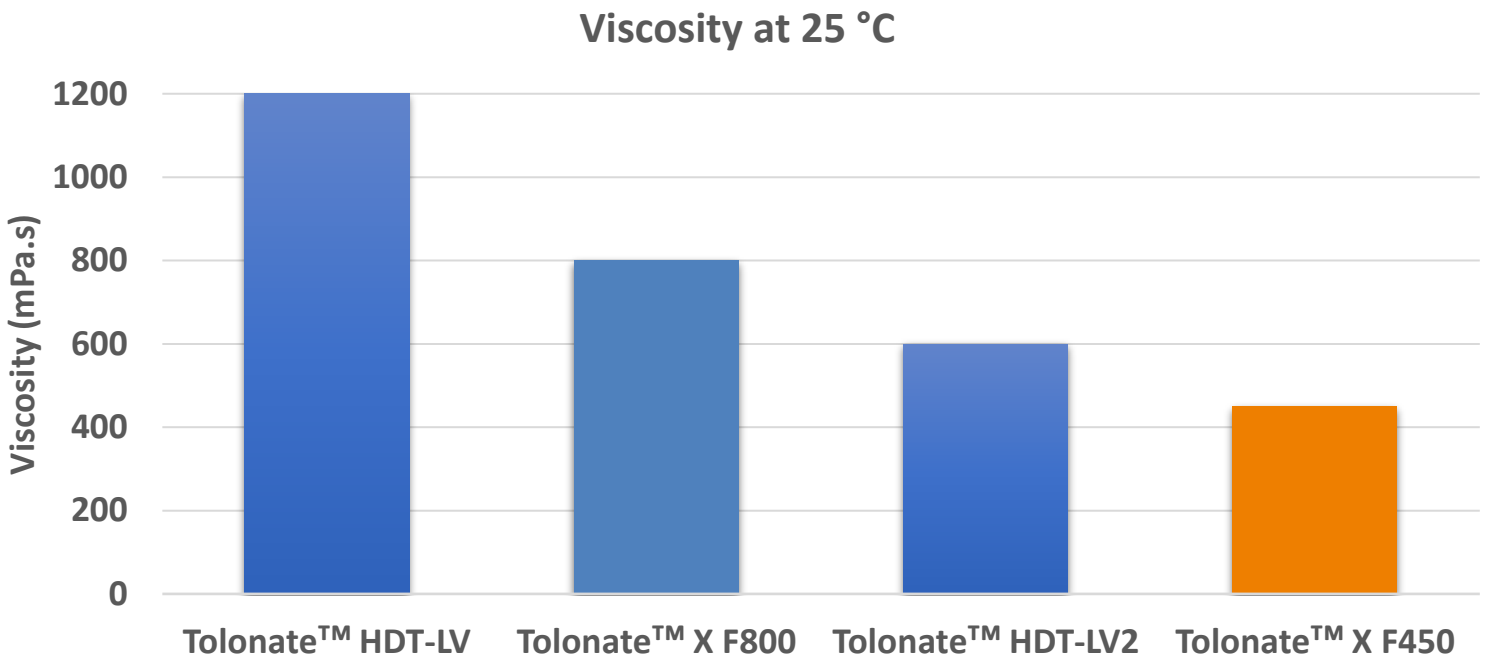
Current offer for polyaspartics



Low viscosity polyisocyanates are the preferred hardeners for aspartic esters

New Tolonate™ X F 450

A new ultra low viscosity hardener to complete the range



Physical properties	Tolonate™ X F 450
NCO (%)	**16,3**
Viscosity at 25 °C (mPa.s)	**450**
Solid content (%)	**100**

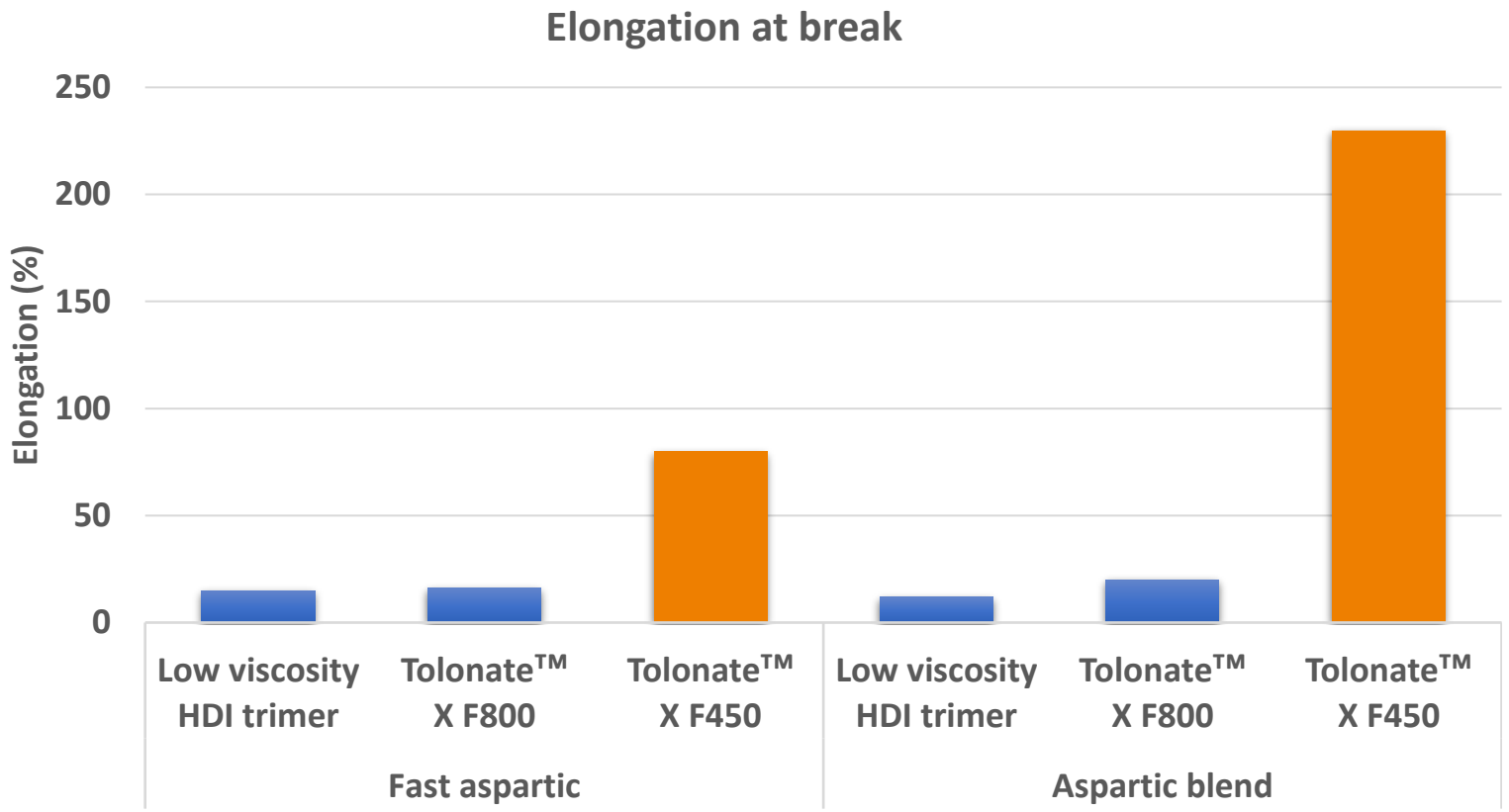
Tolonate™ X F product line

Tolonate™ X F 800 & Tolonate™ X F 450
well suited **for flexible applications**

Products	Reverse Impact (AFNOR)	Conical mandrel	Erichsen Cupping
Low viscosity HDI trimer	**20 cm**	✗	**8,8 mm**
Tolonate™ X F 800	**> 100 cm**	✓	**> 9,5 mm**
Tolonate™ X F 450	**> 100 cm**	✓	**> 9,5 mm**

Tolonate™ X F 450
Elastic formulations

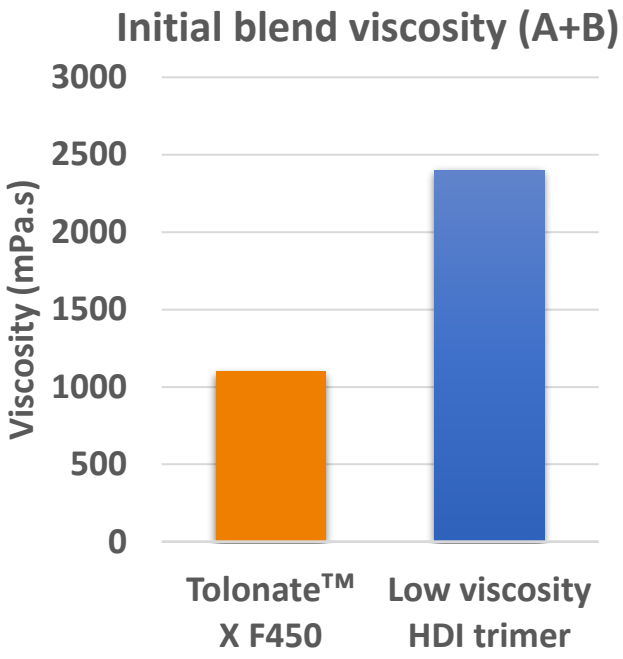
High and tunable elongation at break

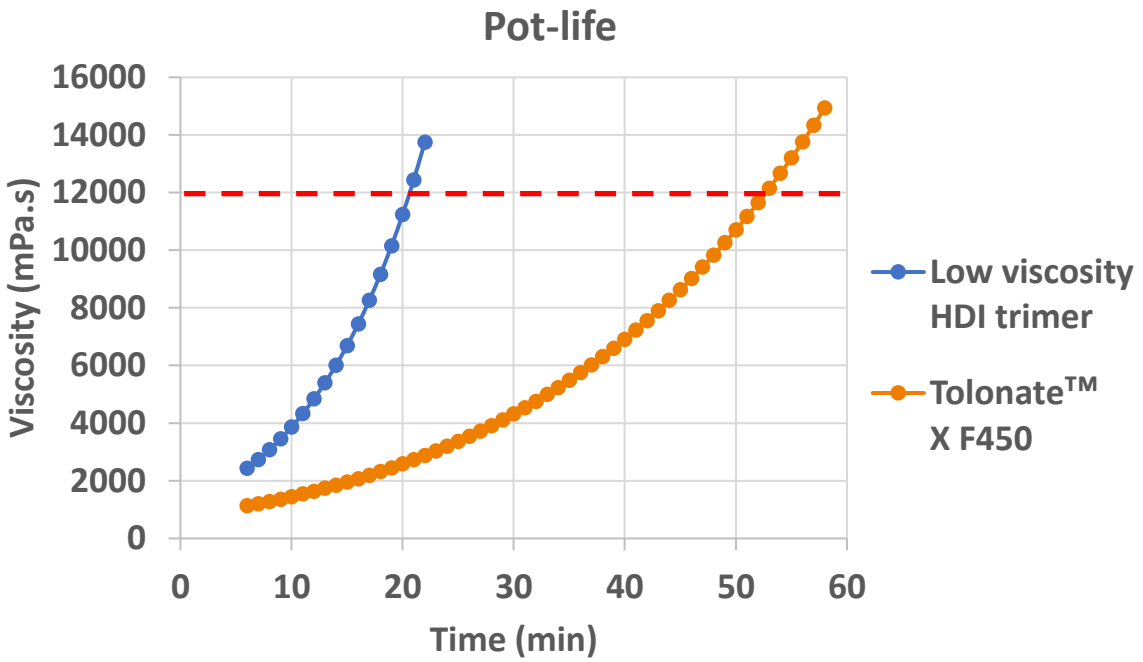


Tolonate™ X F 450 suitable for applications requiring **superior flexibility**

Polyaspartic formulation, NCO/NH=1

Tolonate™ X F 450 Reactivity



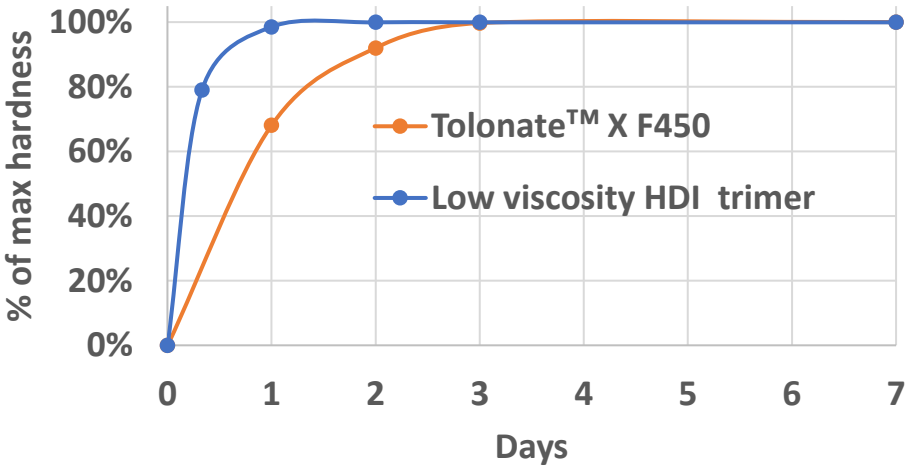


Low viscosity and **longer pot-life** with fast curing

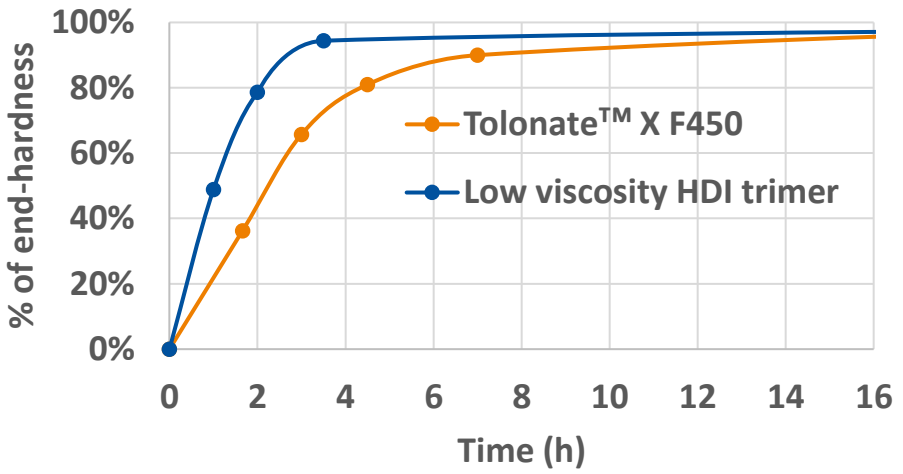
Polyaspartic formulation, NCO/NH=1, fast resin

Tolonate™ X F 450
Hardness

Hardness - Shore D (> 6 mm thick)



Hardness – König (150 µm thick)

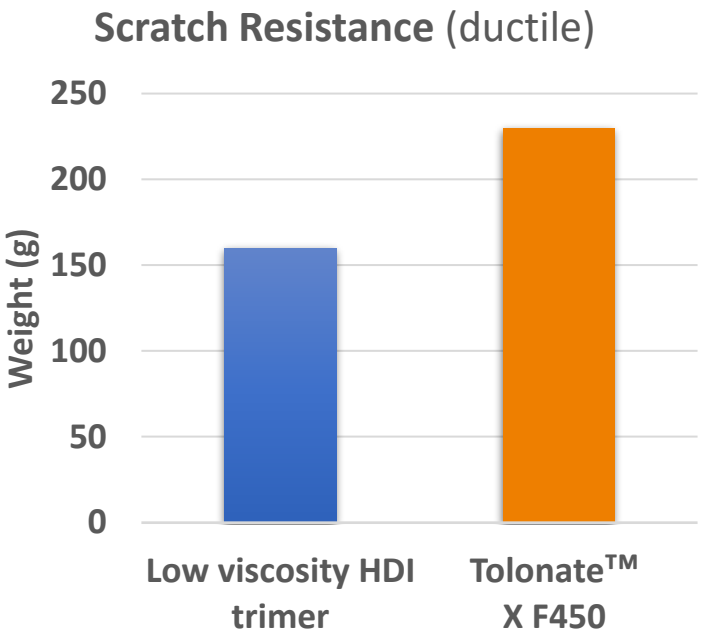


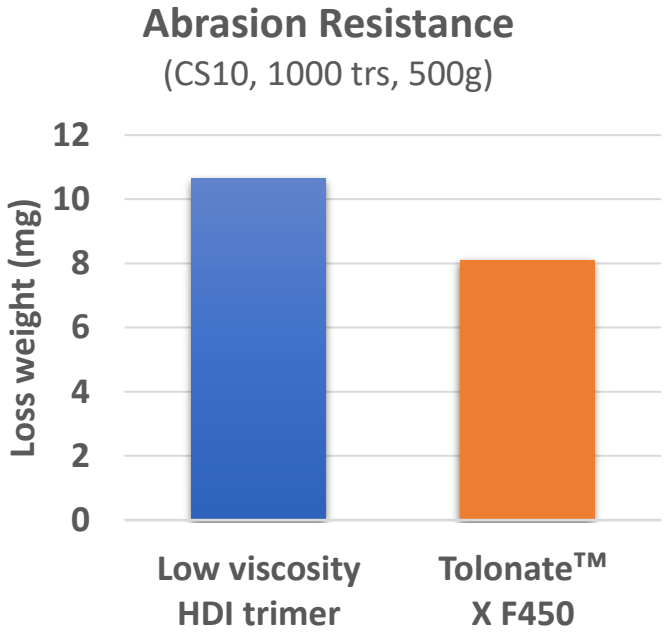
Products after full cure	Hardness Shore D	Hardness König (osz)
Low viscosity HDI trimer	**69**	**90**
Tolonate™ X F 450	**60**	**80**

Good balance between **flexibility**, **pot-life** and **hardness**

Tolonate™ X F 450
Scratch and abrasion resistance

High strength coating





Superior mechanical resistance (scratch and abrasion) than standard low-viscosity HDI trimer

Polyaspartic formulation, NCO/NH=1, fast resin

Tolonate™ X F 450 Applications

Designed for multiple technologies and applications requiring high flexibility

- **Polyaspartics & polyureas formulations**
- **VOC-Free/ultra-low VOC systems**

- Windmill coatings
- Concrete flooring
- Sport Flooring
- Waterproofing
- Plastic coatings





Tolonate™ X F 450 Conclusions

Tolonate™ X F 450 is the perfect hardener for elastic coatings

Solvent free and ultra-low viscosity

- High elongation
- Long pot-life
- Good hardness

Designed for **polyaspartic/polyurea** formulations

Compatible with all Tolonate™ range to fine tune hardener formulations in **2K PU systems** (SB & WB)

Tolonate™ X F 450

Please contact xavier.challamel@vencorex.com
for any question or sample order.