VIABILIZANDO A RECICLAGEM MECÂNICA DE PU ATRAVÉS DE AGLOMERANTES

RICARDO LUIZ

24 DE SETEMBRO, 2021

BRENNTAG
ConnectingChemistry

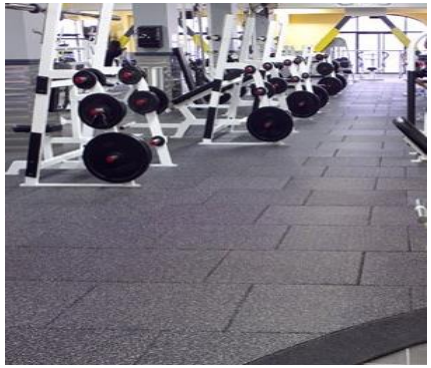
PERSONAL INTRODUCTION

Ricardo Vagner Luiz – PU laboratory leader

- **University of São Paulo (USP)**
- Bachelor Degree in Industrial Chemistry – 2008
- Bachelor Degree in Chemistry Education – 2008
- Master Degree in Chemistry - 2015

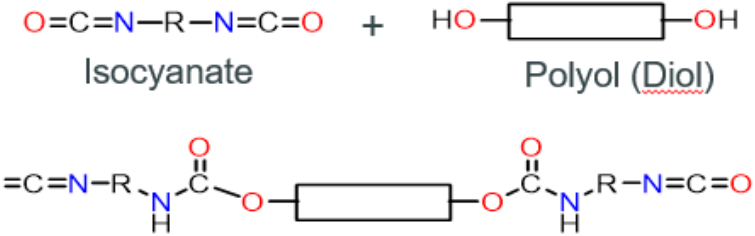
- Joined Dow in 2011 as Latin America TS&D and Product Stewardship for Amines & Chelants, Chlorinated Solvents and Acrylic Monomers.

Products enabled by Mechanical Recycling

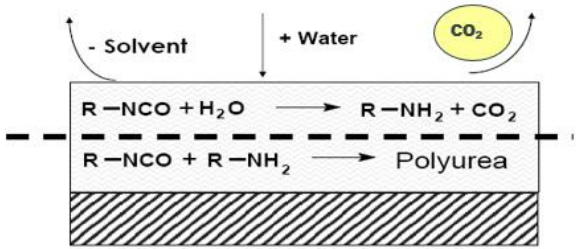


PREPOLYMERS

Isocyanate in excess, at least 2 mole or more, is reacted with one mole of polyol to make a “new” isocyanate terminated polymer.



An Isocyanate terminated prepolymer



Aglomerante
Prepolímero
Cola de PU

VORAMER™ MF 1531

Common Prepolymers available in the market

- Two components (TDI and Polyol)
  - ✓ TDI is in the Class 2B (possible human carcinogen) TLV 0.005 ppm

- Prepolymers diluted in:
  - ✓ Methylene Chloride (H351 - Suspected of causing cancer)

  - ✓ Dioctyl phthalate (May damage fertility)

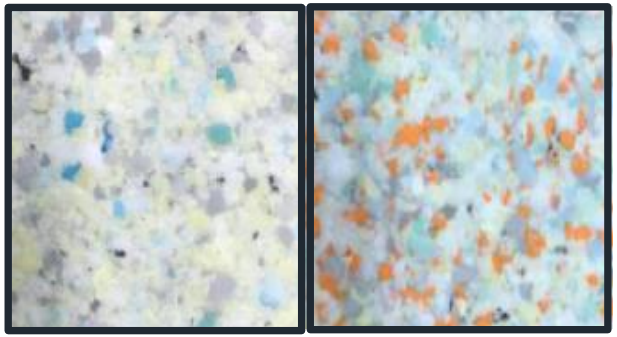
  - ✓ Hydrocarbons (flammable)

VORAMER™ MF 1531

- Prepolymer based on MDI with the following characteristics:
  - ✓ NCO: 17-18% (good reactivity profile)
  - ✓ Viscosity: 800 – 1100 cP (good flowability)
- 100% active ingredient
- No plasticizers
- Better toxicological profile (lower vapor pressure; lower exposure) compared to TDI and prepolymers diluted with methylene chloride, plasticizers based on phthalates and hydrocarbons Good adhesion in fabric-foam scrap
- Lower dosage needed to achieve mechanical properties according to ABNT NBR 13579-1
- Less catalyst needed to cure the rebounded foam

How VORAMER™ MF 1531 IS TESTED?

Rebounded Foam



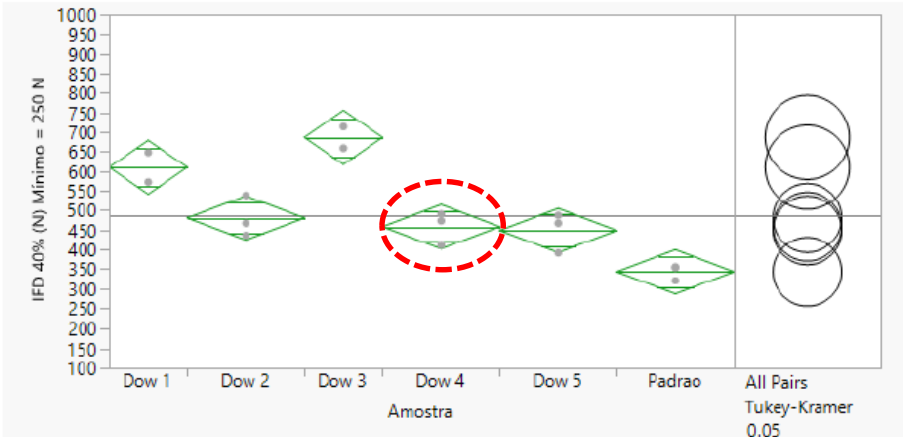
Density: min. 65 kg/m^3

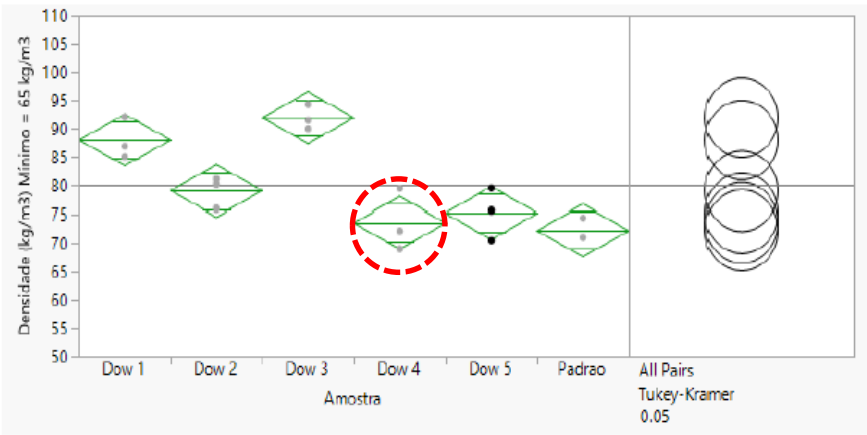
Loss of thickness: max 10%
IFD 40%: min. 250 N
Loss of IFD 40%: max. 35%

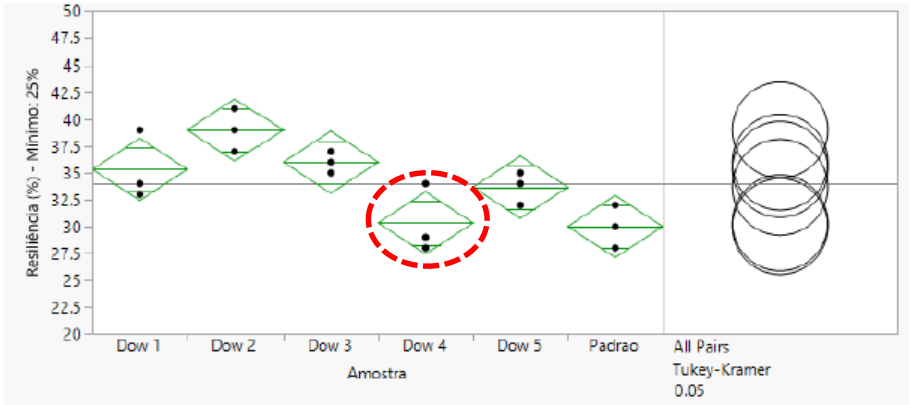
Resilience: min. 25%

DPC 50%: max. 25%

RESULTS







VORAMER™ MF 1531

- 10 – 20% dosage reduction
- 2.5 times less of catalyst usage (stannous octoate)

Obrigado pela atenção.