Module 38 – Brominated epoxy resins chemistry

Objectives

- Understand the chemistry of the brominated product range
- Understand how it compares with the chemistry of the bisphenol A resins
- Understand why brominated resins are interesting
- Understand how the brominated epoxy resins are characterized

Reminder: bisphenol A epoxy resins chemistry
Brominated epoxy resins chemistry

Tetra Bromo Bisphenol A (TBBA)

Why add bromine?

- Fire propagates thanks to reactive
  - Hydrogen radicals (H\(^*\))
  - Hydroxyl radicals (OH\(^*\))

- Brominated compounds
  - Release HBr
  - Produce less reactive Br\(^*\)
  \( \Rightarrow \) Fire stops propagating
**Characterization**

- **Epoxy Equivalent Weight (gr/eq.)**
  How much resin do I need to take in order to have one epoxy group?

- **Viscosity**
  How easily will the resin flow?

- **Volatiles**
  How much resin does the solution contain?

- **Bromine content**
  How much flame retardant atoms are in there?

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**Summary**

- Understand the chemistry of the brominated product range
- Understand how it compares with the chemistry of the bisphenol A resins
  - Similar to bisphenol A epoxy resins chemistry
- Understand why brominated resins are interesting
  - Flame retardant properties
- Understand how the brominated epoxy resins are characterized
  - Similar to bisphenol A epoxy resins
    - Solid content
    - Viscosity
    - EEW
    - Bromine content