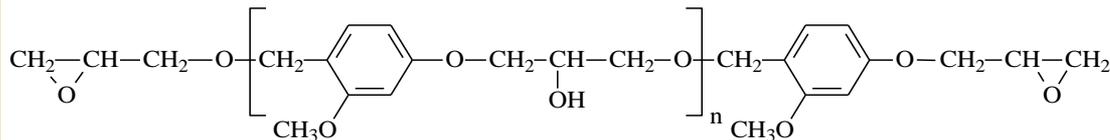


NON-TOXIC AND BIOBASED ALTERNATIVE TO BISPHENOL-A RESINS

● **DGEVA : Vanillin DiGlycidyl Ether**

SPECIFIC POLYMERS develops the synthesis of various vanillin derivatives. Special interest was given to Vanillin DiGlycidyl Ether prepared from vanillyl alcohol since it appears as a very promising **non-toxic** and **biobased** substituent to DGEBA in **epoxy resin formulations**. Combined with Isophorone diamine (IPDA), Vanillin bis epoxy allow preparing epoxy resins with a **Tg of 100°C**.

SP-9S-5-005 DGEVA – Vanillin Bis Epoxy



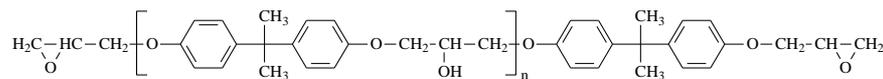
According to **SPECIFIC POLYMERS** industrial co-workers, this reference allow preparing a large variety of soft to tough materials in paint and coating applications. Up to now, Vanillin DGE appears as the **most promising candidate to substitute DGEBA at the industrial scale**.

● **Bisphenol-A (BPA) ban in consumer products**

Known as **BPA** for short, bisphenol A is a **reprotoxic substance** that has been found to cause **severe diseases** such genetic defect, obesity, endometrial hyperplasia, recurrent miscarriages, abnormal karyotypes and polycystic ovarian syndrome.



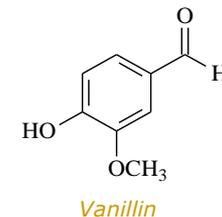
These major concerns about potentially negative health effects from exposure to BPA have led to action legislatures. **In France, BPA has been banned from all food packet starting from 1st January 2015**. BPA is the building block of polycarbonate plastic. It is also used for the synthesis of diglycidyl ether of BPA (**DGEBA**) which serves as a hardening agent in the manufacture of epoxy resins found in many common consumer products. (coatings for food and beverage, medical and dental devices, paints,...).¹



Diglycidyl Ether of Bisphenol A: Current Epoxy resins hardening agent

● **Vanillin : Biobased building block**

Vanillin has been shown to be a promising biobased building block for the synthesis of various biobased chemicals for polymer chemistry. It can be extracted from lignin (vanillin-from-lignin process) and chemically modified in a wide range of monomers that can be used to prepare epoxy, polyester or polyurethanes based materials.²



2. Fache, M.; Darroman, E.; Besse, V.; Auvergne, R.; Caillol, S.; Boutevin, B., *Vanillin, a promising biobased building-block for monomer synthesis*, *Green Chem* 2014, 16, 1987.

Find all **SPECIFIC POLYMERS sustainable** monomers and polymers in our catalog.



1. Sylvain Caillol, *ChemSUD, Bulletin d'information janvier 2015*.
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