

Description for the general public

Benzoxazines are organic compounds which were first synthesized in 1944. They are molecules in which a heterocyclic ring with oxygen and nitrogen occurs attached to the aromatic ring. Polybenzoxazines, resulting from the polyaddition of the benzoxazine monomers, are characterized by a number of desirable properties. Rapid molecular weight increase during polymerization, no polymerisation shrinkage, low moisture absorption, high glass transition temperature and high design potential are the major advantages of the polymers described.

Phenol and its derivatives are one of the principal reagents required to obtain benzoxazine compounds. Every year almost 9 million tons of phenol are produced, 97% of which is produced by cumene processing. Although increased interest in phenol of biological origin is noticeable, only a small fraction is acquired from natural sources. Exploring the new possibilities for the use of phenol and its derivatives from natural sources seems to be certainly worth attention. It is especially proved in the literature that compounds such as lignin, lignosulfonates, flavonoids, polyphenols or plant tannins (hydrolysed and condensed) can, in some cases, be successfully used as a substitute for synthetic phenols. Unfortunately, there is still not enough reports on this topic to consider it exploited. Therefore, this research problem will in future increase the utilization of natural-origin phenol and increase interest in modern benzoxazine resins.