



June 28, 2021
ENEOS Corporation

Sales Commenced of New Structure Alicyclic Epoxy Monomer "EPOCHALIC ®"

ENEOS Corporation (President: Ota Katsuyuki "ENEOS") announces that it has commenced sales of its new structure Alicyclic Epoxy Monomer "EPOCHALIC ®." EPOCHALIC is a basic composition of epoxy resin*¹ which is a typical peripheral material used for electronic devices. It is a completely new alicyclic epoxy, and the first commercialized epoxy in the world with that structure.

In recent years, due to the development of next-generation communication technology, semiconductor components continue down-sizing, while the volume of communications is increasing, and the need for faster processing is also increasing; then the amount of heat generation by peripheral electronic devices has increased.

Therefore, it is essential for resins used in electronic devices to maintain their functions normally when used at high temperatures, and higher heat resistance and strength than ever are required.

Utilizing the knowledge that we have cultivated in the ENB*² business in which we have the world's top class share through our unique technology, EPOCHALIC has the capability of providing high heat resistance and strength as an epoxy resin composition by its molecular design*³

There are two types of EPOCHALIC in the product lineup*⁴, "DE-102" which has excellent fluidity, and "DE-103" which is highly effective at improving heat resistance, and we will propose them according to the needs of customer.

In the 2040 Long-Term Vision, the ENEOS Group positions the high-performance materials business as a growth business for developing and strengthening our technological capabilities.

Through the provision of innovative products that link to the development of society, ENEOS will help to realize the United Nations Sustainable Development Goal 9, "Industries, innovation and infrastructure" by contributing to "building resilient infrastructure, promoting sustainable industrialization and fostering innovation."

*1 Epoxy resin

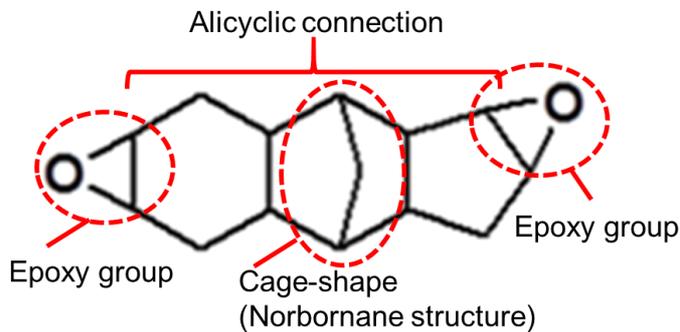
Epoxy resin is a thermosetting resin with high electrical insulation, water resistance, and chemical resistance, and is widely used as a material for electronic device peripheral materials (coating agents, etc.) and adhesives. Epoxy resins are known to add functions suitable for their respective uses by compounding them using various epoxy monomers, curing agents, fillers, and additives.

*2 ENB

Ethylidene Norbornene(ENB) is an essential ingredient for production of EPDM (ethylene, propylene, diene, methylene linkage), which is a synthetic rubber widely used for industrial and construction purposes, as well as automobile window frames and radiator hoses.

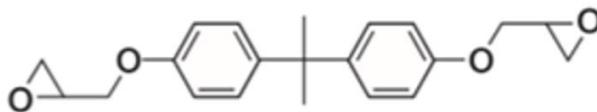
*3 Molecular structure of EPOCHALIC

The alicyclic connection and cage-shaped molecules provide high heat resistance and strength (high rigidity) to the epoxy resin.



Molecular structure of EPOCHALIC "DE-102"

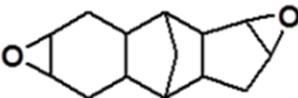
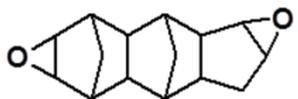
3D view of the cage-shape



Reference figure of common epoxy monomer



*4 Product lineup and features

Grade name	Structure	Features
EPOCHALIC "DE-102"		Excellent fluidity
EPOCHALIC "DE-102"		Highly effective at improving heat resistance