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## **Mon-Af-Po1.14-03 [29]: New types of organic resins for insulation of warm magnets**

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Two types of new organic resins are under development at KEK for the magnet insulation materials. One is Cynate ester resins which will be used in warm magnet insulation instead of usual epoxy resins. One of its typical (possible) characteristics is its radiation hardness. We have already developed a new type of the insulation resin based on Bismaleimide-Triazine (BT) resin. BT resin was widely used for high intensity accelerators because of its one order of magnitude higher radiation hardness than normal epoxy resins. Especially, most magnets of J-PARC, Japanese high intensity proton accelerator complex, were assembled with the BT resin. However some thermal characteristics of the BT resin is somewhat too keen with its curing temperature to be handled by easy manner. Then we found some possibility to realize the easy-manner handling characteristics in Cynate ester resins. Some parts of the R&D works are now under progress at KEK and at several chemical collaborating companies in Japan. We will be able to report the latest status of this R&D works at MT26.

Another trial is under progress with resins which are hardened by Ultra Violet light. Then the resin is called as "UV-resin". This UV resin can be very smooth liquid in normal room temperature. However the resin will be hardened quickly under the irradiation of UV-light, which can be found in natural light from the sun and from light source assembled with UV-light LED, etc. Thus their very important characteristics is its rapidness to be hardened. Some UV-resin will be hardened within several second from smooth liquid by the irradiation of UV-LED light. This phenomenon will help us to assemble warm magnet coils with very much complicated shape. Possible problems are its mechanical strength and radiation hardness. At present R&D of the UV-resin has just started and we will be able to report some progress at MT26.

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