



**AERONAUTICAL RESEARCH AND TEST INSTITUTE, a.s.  
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**Technical evaluation of new 5M epoxy laminating resin systems**

Based on your request for technical evaluation of laminating resin systems Letoxit<sup>®</sup> PR 217 / EM 315, 316, 317, Letoxit<sup>®</sup> PR 220 / EM 305, 306, 307 and Letoxit<sup>®</sup> PR 220 / EM 315, 316, 317 we send you our opinion:

Systems mentioned above we have evaluated in accordance with enclosed data sheets, by experimental evaluation and practically in production of test panels and the part of ultra-light plane.

Mentioned epoxy systems have been tested for:

- Suitability for production of components of ultra-light planes by standard wet lamination method.
- Suitability for production of components of ultra-light planes by RTM (Resin Transfer Moulding) and VIP (Vacuum Infusion Process) production methods. Usability for production of large mouldings have been examined especially.
- Suitability for production of components of ultra-light planes generally from the point of view of mechanical properties of cured unreinforced resin.

After evaluation of mentioned parameters it can be observed that:

- All tested resin systems meet well requirements for production of components of ultra-light planes by standard wet lamination method, particularly due to low viscosity and good gel time values.
- Resin systems Letoxit<sup>®</sup> PR 220 / EM 307 and Letoxit<sup>®</sup> PR 220 / EM 317 were evaluated as optimal for production of components of ultra-light planes by RTM and VIP infusion production methods due to auspicious curve viscosity / time at room temperature. These systems are fully comparable to Araldite LY/HY 5052 and MGS L285 / H287 epoxy systems.
- Noticeable advantage is absence of nonylphenol in Letoxit<sup>®</sup> EM 315, 316, 317 hardeners that make Letoxit<sup>®</sup> systems very well physiologically tolerant.
- Mechanical parameters of cured unreinforced resins presented by producer were compared with MGS 285 / 285,286,287 and ARALDITE<sup>®</sup> LY/HY 5052 – systems qualified for aerospace production. It can be stated, that new 5M systems are comparable from the point of view of mechanical parameters and are able to be certified.

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