

CBRI Certification of PPR Pipes made of AER003N

4.6 Suitability Assessment

The suitability of PPR (Koylene 'Repol') granules and their pipes & fittings is assessed according to the existing relevant specifications. The material properties, potability & mechanical properties of the pipes & fittings and their dimensional details are compared with the requirement mentioned in DIN 8077, DIN 8078 and DIN 16962 respectively. It is found that the pipes and fittings made out of Koylene (Repol) meet the requirements (Table 6-8). The potability behavior of water stored in the pipes was compared with the requirements mentioned in IS: 10500 (Table 14) and IS: 10910 (leachable additives) for its safe use for drinking water supply. It is found that the amount of leachable additives is under prescribed limit of 60 mg/l (Table 9). Chlorine disinfection on the pipes evaluated as per AWWA C 651 indicates that there is insignificant change in the burst strength of pipes. Under hydrostatic sustained pressure, the pipes are neither leak nor burst (Table 15). Outdoor weathering results exhibited that there is no discoloration or visual defects developed at the end of 12 months natural exposure. There is negligible change in the surface topography and physico-mechanical properties of PPR pipes (Table 18). The PPR pipes are chemical resistant against various chemicals (Table 17). The changes in permanence properties of PPR pipes are under permissible limit (IS: 13360 (Part 8/ sec 3). PPR plastic-to-metal transition fittings are stable and do not show any evidence of leakage after thermo-cycling as per ASTM D 2846.

5.0 Conclusions & Recommendations

- On the basis of the above experimental results, 'Koylene (Repol) AER 003N' polypropylene random copolymer has been found suitable as a piping material in the manufacturing of pipes and fittings for hot and cold water distribution systems.
- PPR pipes and fittings made out of 'Koylene (Repol) AER 003N' meet the requirements of DIN 8077, DIN 8078, DIN 16962, CED 50 (7338) {Draft Indian Standard on polypropylene random copolymer pipes for hot and cold

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