Table 1

Chemcical properties of epoxy resin

|  |  |
| --- | --- |
| Structural Situation | Two-component epoxy resin |
| Density | 1.23 gr/cm³ |
| Appearance/color | Clear |
| Full cure | 7 day (23°C - %50 moisture) |
| Min. curing temperature | +8 °C |
| Adhesion strength | 2,5N/mm² |
| Application temperature | +8°C - +35°C |
| Water resistance | Very good |
| UV strength | High |
| Na2O | 1,21 |
| Loss of Glow | 3,34 |
| Compressive strength | >30N/mm² |
| Heat resistance | -20 °C - +145 °C |
| First drying | 4 hours |
| Working time | 45-55 minute |
| Application temperature | 5 °C - 35 °C |

Table 2

Measurement results of insulation board samples

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Mechanical and physical properties** | **HS10** | **HS20** | **Average** | **P** |
| Thermal Conductivity Coefficient (W/mK) | 0.136 | 0.148 | 0.142 | 0.008\*\* |
| Ultrasonic Sound Transmission Rate (m/sn) | 1196 | 1270 | 1233 | 0.003\*\* |
| Unit Volume Weight (g/cm³) | 1.543 | 1.592 | 1.567 | 0.003\*\* |
| Water Absorption Rate (%) | 11.29 | 9.23 | 10.26 | 0.006\*\* |
| Compressive Strength (MPa) | 1.13 | 1.47 | 1.3 | 0.014\* |



Fig. 1.Los Angles device and ground hazelnut shells



Fig. 2. Epoxy gel and binder



Fig. 3. Production of ınsulation board samples



Fig. 4. Thermal conductivity coefficients of insulation board samples

Fig. 5. Sound transmission velocities of insulation board samples



Fig. 6. Unit volume weights of insulation board samples



Fig. 7. Water absorption rates of insulation board samples



Fig. 8. Compressive strengths of insulation board samples