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OBJECTIVE

To develop a water proof Polyurethane seal for water tank fabrication

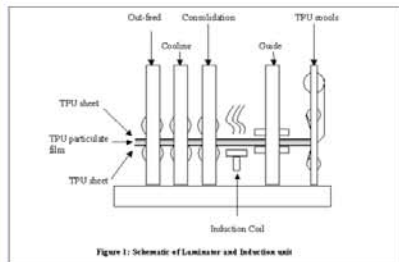
FABRICATION TECHNOLOGY

1. Stages of fabrication
 - i. Induction Heating
 - ii. Laminator stages
 - Cooling
 - Consolidation
 - Out feed
2. Laminate consists of particulate film and two thermoplastic polyurethane sheets
3. Particulate film is melted by induction heating to form the adhesive medium
4. Laminate is then cooled and consolidated

PROCESS PARAMETERS

- Induction coil distance from rollers
 - Induction coil distance from laminate
 - Laminate feed rate
 - Roller pressure
 - Laminate temperature
1. Induction coil distance determine the heating and cooling rate of adhesive medium and consequently the bond strength
 2. Feed rate determines the heating rate and consolidation
 3. Roller pressure determines the adhesive distribution
 4. Laminate temperature correlates to particulate film temperature, which determines the state of adhesive medium

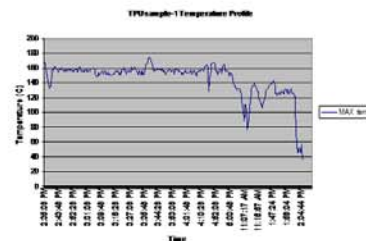
SETUP



DETERMINED PARAMETERS

- Laminate feed rate : 0.065 ft/min
- Consolidation Roller Pr : 40 psi
- Cooling Roller Pr : 60 psi
- Out-feed Pr : 60 psi
- Laminate temperature : 150°C

LAMINATE TEMPERATURE PROFILE



RESULTS

- Successful samples were fabricated using the parameters determined
- Adhesive air pockets reduced to minimum
- Adhesive width maintained at a uniform 1.5"
- Good bonding; substrate failure observed

ACKNOWLEDGEMENTS

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