

CASE STUDY

Owens Corning's Advantex® Glass Fibers in India's First Type-IV Composite LPG Cylinders Commercialized by Time Technoplast



LPG cylinder 85% filled with propane and subjected to intensive fire.

Time Technoplast, a leading manufacturer of polymer packaging, is an innovative, technically driven global conglomerate, catering to growing industry segments for Composite Cylinders for LPG. Time Technoplast acquired an established European manufacturer of LPG composite cylinders.

PROJECT REQUIREMENT

Current material choice - low carbon welded steel offers lower initial material cost; however issues such as higher weight, laborious manufacturing, corrosion, and poor ergonomics triggers the use of advanced material such as fiber reinforced polymer (FRP) composite made with Owens Corning's Advantex® glass fibers.



Advantex® 158B roving over wrap shows no external damages after passing the test

SOLUTION

Time's LiteSafe® Type IV composite cylinder is composed of the seamless gas-tight thermoplastic liner which is fully wrapped by epoxy resin impregnated with Owens Corning Advantex® glass fiber roving to ensure the desired performance. An upper boss enables typical valve assembly and is suitable to most valve types. The outer casing is made from heavy duty HDPE (High Density Polyethylene) which provides extra protection and easy handling during transportation; it can be different in color according to customer's demand. Cylinders are designed by using special CAD/CAM systems and are technologically optimized at the very stage of designing.

Mr. Venkateshwaran N, Vice President - Auto Components and Composites at Time Technoplast mentions "**Owens Corning's Advantex® 158B Glass Fiber Roving** perfectly meets our requirement of passing all the regulatory tests and standards required for composite LPG cylinders. **Owens Corning's Advantex® 158B contributes excellent processing ease during fabrication, excellent mechanical properties and corrosion resistance that we require for this application**".



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Salient features of LiteSafe® Type –IV LPG composite cylinders using Owens Corning Advantex® glass:-

- **Code compliant:** PESO, ESMA, LPGSASA
- **Safety** – 100% explosion proof (Passes the Bonfire test successfully)
- **Light Weighting** – 50 % reduction over conventional steel cylinders.
- **Non corrosive** – Advantex offers exceptional corrosion resistance over steel and E-Glass
- **Translucency**– This makes for easy visibility of LPG gas levels.
- **Enhanced aesthetics** and attractive in appearance.
- **Excellent Ergonomics** due to light weight and design.
- Improved **UV** resistance.

Time Technoplast have now successfully and qualitatively launched this product in India. Also, Time now have approvals from Petroleum And Safety Explosives Organization (PESO) for the Indian market, Emirates Authority for Standardization & Metrology (ESMA) for the middle East market, Liquefied Petroleum Gas Safety Association of South Africa (LPGSASA) to service South African market and its adjoining countries.

Time Technoplast LiteSafe cylinders are certified by TÜV Rhineland, Germany as per international standards ISO 11119-3, EN 12245:2002, EN14427:2004, EC/36/1999/TPED and ADR/RID

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