



euromere News



COMPOSITES BY PASSION !

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Core business, Truck panels!

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Since its debuts in 1986, Euromere has concentrated its efforts towards composites panel industries where the need of dedicated products is high and where we've always been keen on development. Euromere technology teams developed through the years constantly **improved Gel Coat** for this industry in constant demand for effectiveness.

30 years after, we can obviously say that a lot have been done! And **this is still the beginning**, there is still a lot to do to stay "up to date" and efficient! That's the nice thing about it!

Euromere News N°7 will present Euromere historical background into this Industry, the advantage of using Composite Panels for truck bodies instead of other materials, and will make a status on where we're to face the years to come and more demanding industrials.

Euromere background

As far as one can remember at Euromere, we did first **Eurogel Gel Coat** for continuous and discontinuous production processes in the late 80's. First applied with rollers on flat moulds, this was used for *Corrugated Sheets* production with White and/or Clear gel coat on. Companies were earlier using polyester resins mixed with TiO₂ and cobalt to produce their own colored gel coat but it became rapidly evident that a better



Figure 1: Various Composite panels' solutions for various industries

formulated Gel Coat designed with right chemistry will be needed.



Figure 2: Refrigerated Truck Panel detail

Used for Truck bodies in a large majority, Composite Panels are produced in a discontinuous or continuous process. This industry is facing since its debut tough competition from other materials such as metallic skins where industrialization is possible and cost can be competitive, even if weight, insulation, corrosion resistance, surface finish with paint, are some of the potential draw back.

Composite Panels features

Energy efficiency and Reducing CO₂ emission are quite hot topics nowadays! Truck operators are always willing to increase the transported load with lower emission and consumption! Composite Panels are answering these needs and can be incorporated for both Trailers and Truck Bodies panels for walls, roof and floor construction, reducing overall truck body weight, consumption and emissions at the same time.

Up to 40% weight reduction can be obtained compared to steel skins, 15% compared to Aluminum with better performances! Less weight results in lower transport costs and improved environment!





Figure 3: Truck float built with Composite panels

How to produce Composite Panels?

Composition

Face extérieure :

- Gelcoat
- Résine polyester
- Fibre de verre
- Tissu de verre

Âme :

- Mousse de polyuréthane 40 Kg/m³

Face intérieure :

- Tissu de verre
- Fibre de verre
- Résine polyester
- Gelcoat

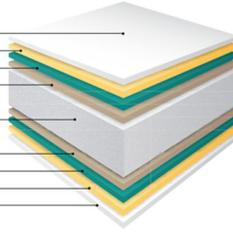


Figure 5: Isothermal Composite Panel details

There are only few ways to produce Composite Panels. The most evident process and probably the main used until now is to glue Composite Skins produced with Gel Coat and Unsaturated laminate (GRP) on both side of a Core Product.

Composite Skins are produced in Continuous lamination processes or discontinuous. The skins are usually rolled and delivered in a desired width to the truck builder, until a certain thickness. Thicker skins will not be rolled and delivered flat for specific demands.

Another way of production is the "One shot" process! Means producing the Composite Panel in mold for discontinuous process or in line for continuous process in only one go! These processes are highly effective and concentrate a large variety of knowledges into the same area.

Eurogel Gel Coat is a crucial part of these processes. It should be adapted for each customer as well as gel time and viscosity are concerned, but also specific end product requirements.

Molds can be in Glass, Composites, Steel or Aluminium.

Gel Coat are generally sprayed on, but can also be poured on, scraped on, rolled on! For each mould surface and application design, the rheology must be adapted to fit the process.



Figure 7: Pouring gel coat on the mold is still popular

Lamination process will follow Gel Coat application, then coring for panel production with needed inserts and reinforcements, then lamination again and top skin application. These high level of technologies in used in such processes are requiring narrow specification of application properties for both Gel Coat and Polyester resins in use. This is why we're always considering the Gel Coat approach as a High Tech. one.

Composite panels advantages

Use of **Gel coated composite panels** are bringing many other advantages compare to aluminium or steel sheets:

- ➔ More durable, resistant material
- ➔ Easy to repair when needed
- ➔ No Corrosion!
- ➔ High outdoor resistance for all climates
- ➔ Long lasting appearance & cosmetics
- ➔ FDA registered
- ➔ No need of painting nor post curing
- ➔ Increased insulation (λ). Low thermal conductivity

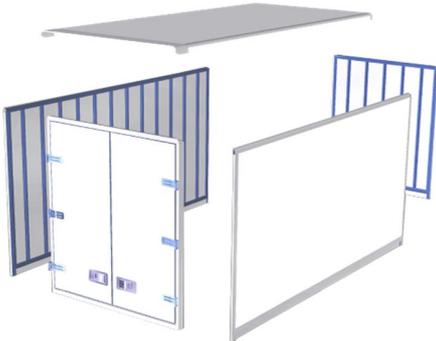


Figure 4: Composite panels' assembly

When comparing with Painted metallic surfaces, Solid layer of **Eurogel Gel Coat** build in the Composite laminate is also providing some other incredible advantages such as:

- ➔ Chemically bonded to laminate substrate, not only mechanically
- ➔ Less risk of micro cracks, adhesion problems
- ➔ Touch up possibilities as Gel Coat is thicker than paint and can be polished and/or repaired and come back to initial gloss and color
- ➔ Micro pore free surfaces. Easy to clean and answer hygiene most difficult needs



Figure 6: Spraying the gel coat in line is preferred solution

Eurogel Gel Coat for Continuous Panel production, a High Technology Product

Eurogel Gel Coat have been developed over the years to enhance both qualities and competitiveness. This industry is one of the largest one in term of Gel coat volumes and cost is always a concern. Quality is at the same time an issue as Composite panels are often exposed to harsh environment (outdoors – roads – water – hail, cold, heat...) and will have to sustain daily extensive uses and poor care from users. Some of the requests for end product requirements are:



- High UV resistance, very low yellowing after years of outdoor exposure
- Gloss retention in same condition have to stay high level
- No bleaching
- Water resistance, no discoloration after water exposure, no blistering
- High mechanical resistance
- Very narrow product specification for automated process
- Long term stability

Actually, EUROMERE delivers well adapted gel coat to all kind of production processes into this industry and develop further its products quality wise to answer the industry request. Most demands are nowadays concerning the **Environment** and products and processes have to answer the European Legislation regarding Styrene in 2019:

The Order of 23 March 2016 establishes the regulatory indicative occupational exposure limit (OEL) for styrene: 8-hour occupational exposure limit (8-hour OEL) at 100 mg / m³ (ie 23 ppm) and The short-term limit value for 15 minutes (VLCT 15 min) at 200 mg / m³. Starting in January 2017, companies in which workers are exposed to styrene will need to take these values into account when assessing risks. From January 2019, styrene will complement the list of hazardous chemical agents subject to a binding occupational exposure limit value (Article R4412-149 of the CT) pursuant to Decree No. 2016-344 of 23 March 2016.

Eurogel Gel Coat FTS - Low Styrene content

This legal evolution is actively pushing everyone in this industry to analyze its ways of practicing and consider modification for improvements.



Every GRP Companies is concern and will have to check Styrene levels according to the European regulation and find solutions to work after January 2019 inside the authorized gap.

We're together with our customers to support their action and are actually working with **new gel coat formulations** to help them into this coming move. EUROMERE is taking actions since now several years to reduce styrene contents in its products and we can obviously remarks than the last years have been providing already great improvements:

- 1990 : 50% styrene level in UP resins
- 2000 : 40% styrene level in UP resins
- 2010 : 30% styrene level in UP resins
- **2017 : 20% styrene level in UP resins**

The technology to go today close to ZERO styrene is available and we know how to go there but to achieve the actual goal (2019), the best way is to go step by step. A too fast move towards will effect negatively the result as taking away a third of the actual product cannot be done without any differences! The product will be different and will react another way so it is crucial to understand in advance where will be the issues before going further.

EUROGEL gel Coat FTS are available for implementation in styrene level from 18 to 23%, depending on colors and formulations.

We'll be pleased to share with you our new product soon. And why not coming at JECWorld in Paris from 13th to 15th to see us on this subject and others?

JECworld
International Composites Event
Paris, March 14-15-16-2017
Meet us Hall 5A / Booth J27

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