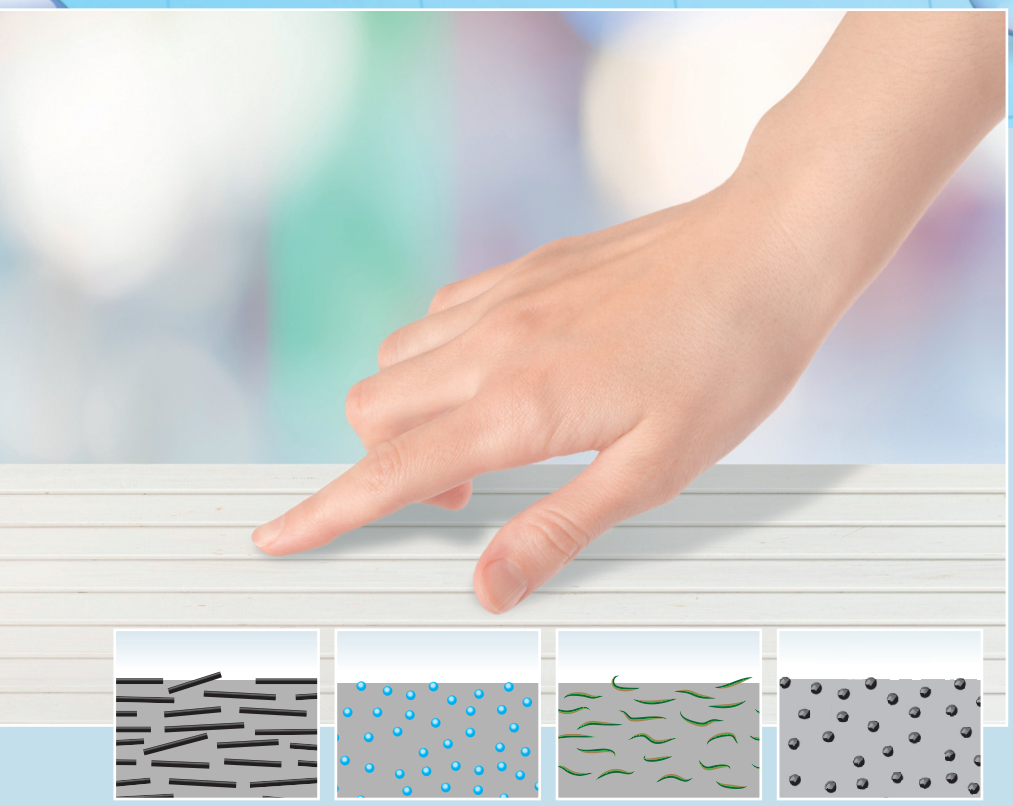
FTS
Fluor Technik System GmbH

Activating surfaces with care

# *Fibre-reinforced plastic composites*

**→ for temperature-sensitive composites → constant geometry → reliable process**





| Critical effects for FRP | Fluorination process for FRP |
|---|---|
| Negative effects on surface | No topographic changes of surface structure |
| Unevenly distributed adhesion properties | Absolutely homogeneous adhesion across entire component surface |
| Fading of filler substances | Smooth, sealed surface morphology |
| Loss of geometry caused by temperature or energy effects | Absolute dimensional stability treatment conditions |
| Profitability for composite materials and their treatment | Economically optimised selection of matrix materials and filler substances due to simple treatment options |
| Tight processing frames for the activation of FRP material surface | Reliable, reproducible treatment processes |

## Objective

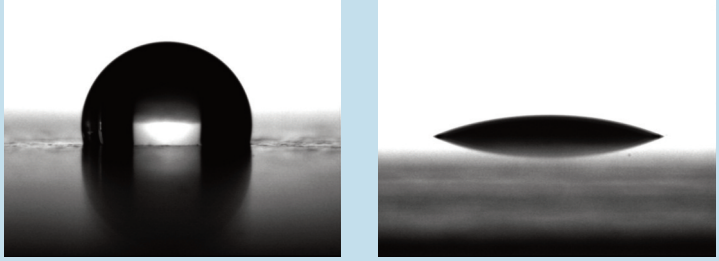
Components made of fibre-reinforced plastics (FRP) require a special treatment before further processing (bonding) or finishing (painting, laminating, flocking) in order to create a wettable and sufficiently adhesive surface. Commonly applied treatments subject these components to thermal, energetic or chemical stress, thereby adversely affecting the material matrix or the filler material contained within. This in turn leads to final products of inferior quality.

## Solution

Gas-phase fluorination creates the properties required for further processing on the top of the surface. Process-related thermal, energetic and chemical stress on the composite components remains minimal. The coating applied to the treated fibre-plastic compounds is homogeneously distributed with absolute evenness, creating a high level of adhesion across the component's entire surface. Gas-phase fluorination does not affect the characteristic properties of the plastic substances in the matrix material in any way. Treated components can be stored for extended periods before further processing.

## Materials

- FRP with thermoset matrix systems
- FRP with thermoplastic matrix systems
- FRP with elastomer matrix systems
- FRP with filler materials such as carbon black, minerals, glass or metal powders



**BeWetting of a matrix surface in untreated (left) and fluorinated (right) state**

(Photos: Dr. Rolf-Dieter Hund, Technische Universität Dresden)

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# *Fluor Technik System GmbH*

Flock Association of Europe
*...be part of the leaders*

TÜV CERT DIN ISO 9001

FTS has focussed on the development and manufacture of fluorination systems and fluorination services for more than 20 years. Realised projects, memberships in trade associations, cooperation with universities and research institutes, as well as many patents, are proof of FTS' expertise. We are member of the Flock Association of Europe FAoE e.V.

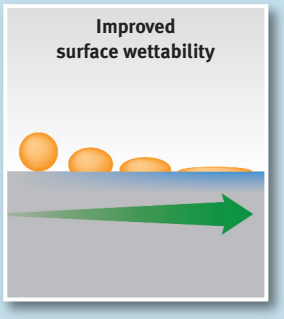
**Consulting**
FTS advises on actions, potential applications and effects of gas-phase fluorination of plastics and other materials. For optimal results, FTS tests the treatment parameters in its own laboratory in close cooperation with its customers.

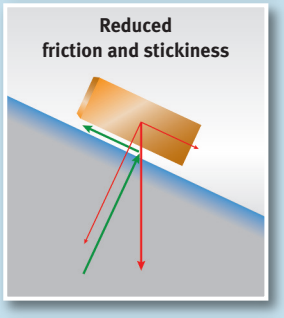
**Development and engineering**
FTS develops and designs systems that are customised to our customers' individual requirements. We utilise our extensive experience in plant engineering and operation – from planning and engineering to installation and commissioning.

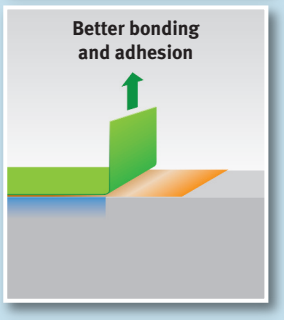
**Plant engineering**
FTS builds inline and offline systems for gas-phase fluorination, adjusting them specifically to the requirements defined by the product or operation. Ancillary systems such as fluorine supply, calcium carbonate absorber and work safety devices are included in the equipment design.

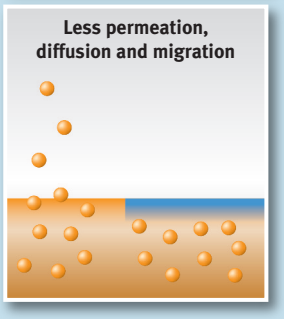
**Service**
FTS offers a full range of services: from operator training and routine maintenance to system extension and conversion. We support the approval and certification of the systems.

**Job order production**
FTS refines the surfaces of supplied products for further processing and installation: bulk material, products placed in transport units, web material, etc.

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