



**Sustainable Lightweight  
Composite Materials**  
**TERRA**



smart

advanced manufacturing

# ORGANISATION PROFILE

Insert brief description of the leading organisation: Name, Personnel, Size, Products/Services/Technical areas and R&D project expertise.

## Tofaş / Tofaş at a Glance

<p>TURKEY'S <b>7.</b> BIGGEST INDUSTRIAL ESTABLISHMENT</p>	<p>TURKEY'S ONLY AUTOMOTIVE MANUFACTURER THAT PRODUCES BOTH PASSENGER CARS AND LIGHT COMMERCIAL VEHICLES</p>	<p>MANUFACTURES TO <b>4</b> DIFFERENT BRANDS</p>	<p>« <b>GOLD STATUS</b> » IN WORLD CLASS MANUFACTURING <b>81</b> Points THE HIGHEST SCORE IN ALL AUTOMOTIVE FACTORIES</p>
<p><b>%19</b> OF TURKEY AUTOMOTIVE INDUSTRY 2020 PRODUCTION</p>	<p><b>46%</b> 2020 INTERNATIONAL SALES TOTAL SHARE IN SALES</p>	<p><b>259.479</b> 2020 NUMBER OF SALES</p>	<p><b>194.145</b> 2020 EXPORT (UNITS)</p>
<p><b>250.630</b> 2020 PRODUCTION (UNITS)</p>	<p>DISTRIBUTOR OF <b>6</b> BRANDS</p>	<p><b>74</b> DEALER <b>125</b> SERVICE POINT</p>	<p>2020 MARKETSHARE <b>%18,4</b></p>

## R&D / About

One of FCA's largest  
R&D center in Europe

**700** employees

**20.090 m<sup>2</sup>**  
laboratory and office space

### TARGET

To develop vehicles that excite and  
technologies  
to fully meet customer needs  
in every region of the world.



Passenger cars



EGEA SEDAN



EGEA HB



EGEA SW



RAM



Jeep



Jeep

Commercial vehicles



RAM



Jeep



Jeep



DOBLO



FIORINO

<https://www.tofas.com.tr/en/Pages/default.aspx>

# PROPOSAL INTRODUCTION (I)

**Vision:** main project goal

To develop a lightweight recycled composite solution by using advanced manufacturing process

- Establish an advanced multilayer composite plate production technique
- Develop an extrusion grade recycled PP copolymer with high melt strength for chemical foaming and expandable glass bubble
- Implement chemical foaming technique for extrusion process
- Implement expanded glass application for extrusion process
- Enable Composite plate to comply Thermoforming process for a DEMO CASE-Composite Door Panel

**Motivation:** why the project is necessary

Developing the recycled composites for lightweight automotive solutions according to sustainable strategy

Achieve a lower carbon footprint without cost up

To increase the crash performance of composite solutions with lightweight solutions in Demo Case

**Content:** which are the developments to be made in the project

- Advanced multilayer composite plate production technique with chemical foaming
- Commercialize a recycled PP copolymer for extrusion suitable with chemical foaming
- Optimize the potential chemical foaming agents with highest cost reduction
- Adjust the expanded glass ratio for extrusion process to lower weight
- Commercialize a high impact composite plate for structural applications

## PROPOSAL INTRODUCTION (II)

**Expected outcome:** descriptions of the results to be obtained in the project

To develop a lightweight recycled composite solution by using advanced manufacturing process

- Min 10% lightweight multilayer composite plate solution
- Min 20% lower carbon footprint recycled PP copolymer solution
- Min 10% Cost effective chemical foaming solution
- Reduce cycle time in thermoforming process

**Impacts:** what will be the expected market impact of the project

- Commercialize a recycled PP copolymer for extrusion suitable with chemical foaming
- Optimize the potential chemical foaming agents with highest cost reduction
- Commercialize a high impact composite plate for automotive applications
- Define LCA of the lightweight composite solution and provide data for open platforms

**Schedule:** start and end dates for the project. Duration.

24-36 months

06/2022 to maximum 06/2025

## PARTNERS

**Current Consortium:** list of partners already involved in the project

Ravago Petrokimya Uretim AS Turkey

Röplast Özer-Group Turkey

**Partner search:** type of partner searched and countries of origin (if necessary).

- Composite Material Feasibility, Material Characterization for CAE Analysis, Stress-Strain Analysis, Impact Analysis, Crash Analysis (University, Research Center, Company)
- LCA Scenario modelling and Analysis for Raw materials and composite semi-finished product, LCA comparative analysis, energy and environmental impact (University, Research Center, Company)
- 2nd DEMO partner in home appliance (Company)

## CONTACT INFO

**Contact info:** of the person coordinating the project proposal

### **PROJECT MANAGEMENT OFFICE COORDINATOR for TOFAŞ R&D**

Canan Turan

[Canan.turan@etkinproje.com](mailto:Canan.turan@etkinproje.com)

### **TOFAŞ R&D**

Kemal Ekbiç

[Kemal.ekbic@tofas.com.tr](mailto:Kemal.ekbic@tofas.com.tr)

Sinan Ozturk

[Suleymansinan.Ozturk@tofas.com.tr](mailto:Suleymansinan.Ozturk@tofas.com.tr)





