



**COMMERCIAL AND INDUSTRIAL  
COMPANY**

**ALUMAX-DNEPR LLC**

**ALUFAS<sup>®</sup>**  
Aluminium  
composite  
panels

**2016-2017**

# About company

Commercial and industrial company Alumax-Dnepr LLC has been known as a leading and sole manufacturer of Aluminum Composite Panels (ACP).



The company was established in 2005. The company has achieved significant success during its marketing activities, which is confirmed by a huge number of implemented infrastructure projects in Ukraine and abroad.

*We strive for that aluminum composite panels **ALUFAS**<sup>®</sup> complying technological standards and ultra-modern architectural trends.*

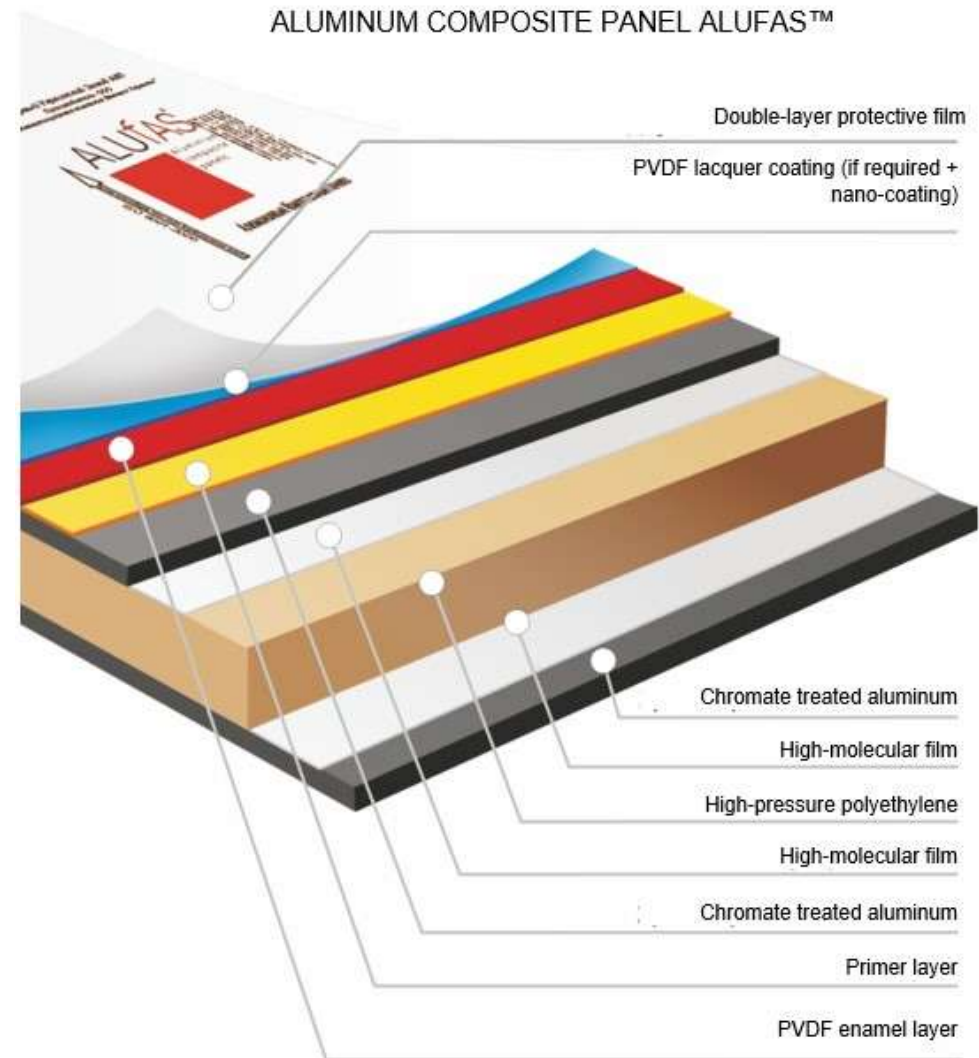


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Aluminium  
composite  
panels

# Material description

Aluminium composite panel is composite panel, which produced by heat pressing process. Aluminium composite panels under trademark ALUFAS consist of two layers of chromate treated aluminum with the next variants of thickness 0,3; 0,4; 0,5 mm, high-polymeric filler and high-molecular between it. The aluminum alloy ENAW3003 H24 is used for production aluminium composite panels under trademark ALUFAS, which is optimal according to the rigidity and plasticity.



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# Material description

The high quality of ACP ALUFAS surface achieves by means of using polymer coating PVDF, PE, decorative film and nano-coating, what provides weather and industrial pollution resistance, corrosive resistance and protects from fading and abrasive wear.

The right side of the material is film-coated, which prevent damages of coating during transportation, processing and installing.

**Attention! After the aluminium composite panels have been installed, skim the protective facer during 45 days!**

The protective facer has directional arrows, showing direction of ACP dyeing, which is need for producing and placing of facade cassette. It is help to avoid the difference in brilliance and light reflection. Using of panels from different groups and lots can bring to chrominance distortion.

**We recommend making an order for project in one lot, what is need for supporting one colour hue.**

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# Uses of material

Aluminium composite panels is used as facing materials for finishing of façade external surface and interior works.

## Principal directions of use ACP ALUFAS

- ✓ Claddings of façade of administrative, corporative building and block of flats.
- ✓ Claddings of malls.
- ✓ Claddings of stadiums, airports, railroad stations and other infrastructure facilities.
- ✓ Claddings of filling stations and other road buildings.
- ✓ Creating of small garden fixtures: decoration of stops, kiosks, pavilions; claddings of balcony, eyebrows, entry elements.
- ✓ Claddings of domical systems.
- ✓ Producing of billboard, show-bench.
- ✓ Interior works.

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# Uses of material



The extensive use of **aluminum composite panels** obtained as a covering layer in a system of **hinged ventilated facades** for all types of buildings and constructions. It improves the aesthetic and performance characteristics of the object.

**Aluminium composite panels under trademark ALUFAS** is universal material, which completely changes and increases performance characteristics of any building without fund raising. It is high-technology, eco-friendly, sound and long-life material, which possesses UV resistance, chemical effect and weathering effect.



# Main technical characteristics of the material

Wide range of aluminum composite panels ALUFAS® allows choosing the optimization supply case that works to the technical and statutory requirements of the customer:

- ❖ Panel thickness: 3, 4, 5 mm.
- ❖ Aluminum layer thickness: 0.3; 0.4; 0.5 mm.
- ❖ Panel width: 1240 mm, 1510 mm.
- ❖ Panel length: according to the Customer requirements.
- ❖ ACP dimension deviations may be  $\pm 0.05$  mm according to the Technical Specifications of Ukraine B.2.6.-28.1-30431978-001:2007

**Aluminum composite panels on the trademark ALUFAS®** allow you to implement all the variety of the most bold exterior and interior design solutions thanks to a wide range of colours. Here you can order the color of aluminum composite panels according to catalogs RAL and KCC, decorative coatings, the palette chameleon, special colors and textures, nanocoating and lamination film-type, which simulate natural materials (granite, marble, wood).

**In stock is not less than of 50 variants of colour!**

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# Technical Specification

## NTD Description and quality profile

Weight	5,5 kg/m <sup>2</sup>		
Thermal expansion coefficient	0,024 mm/m t0 (°C)		
Binder density	0,97 t/m <sup>3</sup>		
Module of elasticity E	70 000 N/mm <sup>2</sup>		
Moment of inertia	0,306 cm <sup>4</sup>		
	4/0,5	4/0,4	4/0,3
Bending stiffness	2400 kN cm <sup>2</sup> /m	1900 kN cm <sup>2</sup> /m	1500 kN cm <sup>2</sup> /m
Aluminum tensile yield	187 N/mm <sup>2</sup>		
Relative elongation	>5%		
Impact strength	50 kg/cm		
Pencil hardness	2N		
Thermal stability	-50°C to +80°C		
Acoustical absorptivity	0,05		
Heat transfer coefficient	5,45 W/m <sup>2</sup>		
Heat transfer resistance	0,009 m k/v		
Boiling water resistance	without changes within 2h		
Acid resistance	48 hours 5% HCL (v/v)		
Alkali resistance	48 hours 5% NaOH (m/m)		
Hydroscopic property	0,01% (material is not hygroscopic)		
Adhesion	Class 1		
Aluminum grade	ENAW3003H24		

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# Aluminum composite panels ALUFAS with nano-coating



Aluminum composite panels with nano-coating (“anti-graffiti”) protect building sides from the works of street artists, soot, grease and other contaminants.

## Advantages of nano-coating:

- UV resistance.
- Resistance to moist
- Alkali and acid resistance.
- Do not adsorb contamination.
- Extends the life of the facade.
- Phenomenally fast and easy to clean with plain water.



Any layer, washed in a traditional way, has surface microdefects such as pores, cracks, irregularities, but in case, if you choose nano-coating, which formed ideal structure, you will receive exceptional surface properties.

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# Aluminum composite panels ALUFAS with nano-coating



*Nano-coating for aluminum composite panels* is special lacquer containing nano-particles. These nano-particles penetrate into the smallest pores, cracks in paintwork, and «sticking» to it due to the action of force of molecular attraction and form a protective layer.

By means of the ultra-low quantities (1 to 100 nm), the nano-particles condensed crystalline grid of the intact substance (paintwork) without disturbing the crystalline grid points forming layer on the surface (thickness of layer is 20-60 nm). Consequently, it builds up ultrahard coating with a very clean structure.

Clean water and duster – that is need to remove the paint from the surface and your building is new and beautiful.

# Main competitive strengths of ACP ALUFAS

- ✓ Complete production cycle of aluminium composite panels композитных in Ukraine allows to produce and supply production as soon as possible (from 2 weeks).
- ✓ Productive capacity is 4000 square meter in a day.
- ✓ Aluminium composite panels production of any length (to 6500 mm) and width 1240 mm and 1540 mm allows to reduce expenses on nesting pattern minimum at 10%.
- ✓ Production quality according to European industry-specific standards.
- ✓ High tenacity of panels paintwork.
- ✓ Certificated warranty period to aluminium composite panels: PVDF with nano-coating - 30 years, PVDF - 25 years, PE with nano-coating - 20 years, PE and décor - 15 years.
- ✓ Flexible pricing policy and individual approach to each customer.
- ✓ Aluminum composite panels on the trademark ALUFAS® allow you to implement all variety of the most bold exterior and interior design solutions thanks to a wide range of colours. Here you can order the color of aluminum composite panels according to catalogs RAL and KCC, decorative coatings, the palette chameleon, special colors and textures, nanocoating and lamination film-type, which simulate natural materials (granite, marble, wood).
- ✓ Avoiding of aluminium composite panels specimen for testing.
- ✓ Consulting assistance as per calculation of façade geometry and interiors.
- ✓ Designing and fabrication operation of assembly availability (slot milling, rolling, and etc.), decorative elements of different forms and construction.

# Main suppliers of materials for ACP ALUFAS producing

Commercial and Industrial Company Alumax-Dnepr LLC cooperates with leading world manufacturers of materials for producing aluminum composite panels, and uses modern high-tech equipment that allows producing products of the highest quality.

At the enterprise has been established a production line of full-cycle of one of the world leading companies ALUMAX (Taiwan).



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Suppliers of paints and lacquers are the world-known companies (world leaders in the production of paints and lacquers): Akzo Nobel Nippon Paint AB (Sweden) and KCC (Korea).

# Main suppliers of materials for ACP ALUFAS producing

**KIBAR DIS TICARET (Turkey) and Chinalco Ruimin Co., LTD (China)** are the suppliers of aluminum, which guarantee compliance with the alloy, grade and thickness of aluminum. Its companies supply aluminum to many European manufacturers of composite panels.



**SUNSIN SURFACE SCIENCE CO., LTD (Korea)** is the supplier of decorative film.

# Production control and warranty of product quality

Aluminum composite panels under trademark ALUFAS comply with all the requirements and standards, provided by the legislation of Ukraine. We have all the certificates and permissions, as well as laboratory studies, confirming the ACP ALUFAS quality.



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Aluminium composite panels

# Production control and warranty of product quality

In 2006 plant control system of Commercial and industrial company Alumax-Dnepr LLC was certified **authoritative international approval body (SGS S.A.)** in accordance with the standard ISO 9001:2000.

In June 2009, it was received certificate against new standards **ISO 9001:2008**.

Certification in the system ISO 9001:2008 talks about the fact that production level and management of Commercial and industrial company Alumax-Dnepr LLC complies with the best international standards.

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# Production control and warranty of product quality

Alumax-Dnepr LLC has own research laboratory facilities, which solves the problem of quality control at all stages of the production.

## Each batch of goods puts through the next quality tests:

- Coating thickness control.
- Coating bump testing.
- Coating bending test.
- Coating hardness testing.
- Color test and gloss.
- Control of the adhesion of the layers panel.



At the painting stage, the optimum curing temperature of the paint coating is maintained. ***At the final stage of the process, a constant visual quality control of the physical configuration of panels is carried out.***

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# Production process of ACP ALUFAS®

## 1. Metal refining and aluminium chromate treatment

In the production of aluminium composite panels ALUFAS®, the most effective technology for protecting aluminium corrosive medium is **chromate treatment of aluminium**.



The protection provided by chromate treatment eliminates the necessity of applying a coat-work on the reverse side of the panel, improves adhesion and prepares a surface for paintwork.



### Main phases:

- 1) Removing grease lubricant from the aluminum surface.
- 2) Acid etching for removing the oxide layer from the sheet surface, providing maximum protection against corrosion.
- 3) Precisely dosed coating of the surface of the aluminum sheet with a layer of chromium salts.

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# Production process of ACP ALUFAS®

## 2. Aluminium coloring

Primery painting and coloring of the ACP ALUFAS® is done by the roller method at automatic coloring line in hermetic boxes, which excludes the influence of environmental factors on the quality of the primery painting and coloring.



The thickness control of the paintwork and precoating is carried out on the panel's surface with the aid of special instruments, which allows to ensure uniformity of the paintwork and its specified thickness throughout the panel's surface.

### Main phases:

The aluminum is painted in three layers:

- 1) Coating of precoating, which provides supreme adhesion of components.
- 2) Coating of pigment finish PVDF (polyvinylidenfluoride).
- 3) Coating of lacquer PVDF, which provides unique defense from weathering effect.

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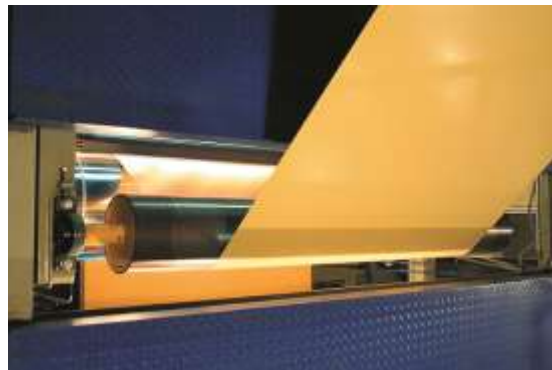
# Production process of ACP ALUFAS®

## 3. Formation of composite panel

The painted aluminum sheet, high-polymeric filler and high-molecular film are firmly connected to each other under the influence of high temperature and pressure.



Then a double-layer protective film is applied, which is need for protecting the panel from damage during transportation and installation.



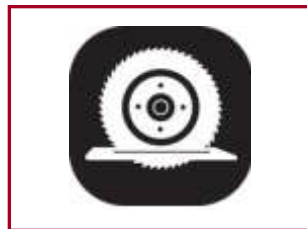
The final stage is the cutting of panels under individual size according to the requirements of the customer, *which allows to optimize expenses for nesting pattern minimum at 10%.*

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# Designing and fabrication operation of assembly availability

Commercial and industrial company Alumax-Dnepr LLC has established milling shop in own manufacturing base, which offers a full range of services for the processing of aluminium composite panels in order to provide a comprehensive solution of problems of the customer.



## Main operations for composite panels processing services:

- nesting pattern (longitudinal and cross cutting);
- milling (slot milling);
- forge-rolling (radially bending) of panels and manufacturing of shaped form, including back bending;
- manufacturing and assembly of façade cassette;
- manufacturing of decorative elements of diverse complexity;
- punching of shaped objects;
- notching;
- manufacturing of slopes, ledges and parapets.

# Commercial and industrial company Alumax-Dnepr LLC is Your reliable partner, which helps you with tasks in façade design!



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