

EN



**etalbond**

COMPOSITE MATERIALS

**bond** with excellence



**ELVAL COLOUR**  
Power to imagine



**Elval Colour** is a leading European coated aluminium manufacturer that produces and sells a full range of building envelope products of superior quality and latest technology, like façade, roofing, rain gutters and corrugated sheets. More than 98% of the company's sales are exported to a total of 70 countries. With over 30 years of experience in coating and colour matching, Elval Colour is a reliable partner that offers added value services to customers by assisting in product specification and selection to best suit the needs of the project/application. Customer orientation and dedication accompanies production and product delivery.

Elval Colour is proud to have employees who care about their work and are able to pursue their corporate goals and objectives with great energy and enthusiasm. A leader in product quality and service, Elval Colour never ceases to detect customers' needs and to respond effectively and efficiently to them. Continuous R&D in various fields allows steady improvement of technology, quality, and environmental standards.

Elval Colour is a member of the European Coil Coating Association(ECCA), the European Aluminium Association, and is ISO 9001-2008, ISO 14001-2004, and OHSAS 18001 accredited.



## **etalbond®**

With its high-quality, resilience and unique appearance, **etalbond®** offers sustainable construction quality and high creative standards. Due to its outstanding product properties, this façade material stands-out.

**etalbond®** for rear-ventilated façades combines the features of energy-efficient construction, economic viability and architectural quality. The technique of the rear-ventilated construction is suitable to those who want to create façades on both new and old buildings as well as roof constructions and interior applications.

Long lifespan, easy maintenance and a balanced combination of insulation, ventilation and moisture control are equally important to appearance and constitute a perfect building envelope.

The projects presented in the next pages, feature highly refined building envelopes, which are functional and emphasize the autonomy and the specific identity of the building.

**etalbond®** gives architects the power to imagine and create.





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## THE COMPOSITE PANEL

**etalbond®** is an Aluminium Composite Material (ACM) for construction projects worldwide.

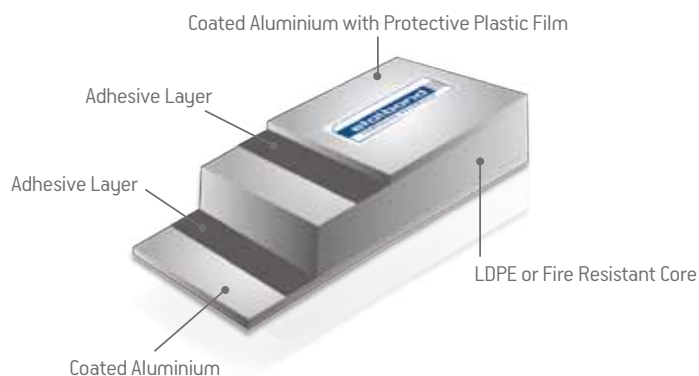
**etalbond®** panels are designed with a special aluminium alloy that presents the right balance between rigidity and flexibility. High wind load capacity and strong penetration resistance are complemented with soft bending for the most demanding façade formations. The strips are rolled and coated in the company's facilities with the outmost care and in compliance with the most demanding European and global norms. The panels are light, highly rigid, absolutely flat and are presented with the most durable coating qualities.

**etalbond®** is available in three different cores. **etalbond® PE** with low-density polyethylene, **etalbond® FR** with a fire-retardant core and **etalbond® A2** with an incombustible core, suitable for the most demanding applications, which complies with all fire safety requirements for external cladding.

## Composition of **etalbond®** PE, FR & A2

- > Protective plastic film
- > High Quality Coating System
- > Aluminium Alloy EN 3105, H44
- > Adhesion Promoter
- > Adhesive layer
- > LD Polyethylene / Fire Retardant / Incombustible\*
- > Adhesive layer
- > Aluminium Alloy EN 3105, H44
- > High Quality Coating System or Primer Coating

*\* Please see page fire classification section or inquire for local certificates*







## THE COMPOSITION A2

### etalbond® A2 - THE NON-combustible aluminium panel

The need for innovative and sustainable materials is greater than ever before, in order to realize the creative visions of architects and designers. Contemporary buildings not only have to comply with the highest design standards, but also have to meet the latest technical requirements in the fields of sustainability, energy efficiency, noise protection, fire protection, etc.

Thanks to its mineral-filled core, **etalbond® A2** is non-flammable and meets the strictest demands of fire regulations. **etalbond® A2** works ideally everywhere fire protection is necessary: High-rise buildings, buildings with high visitation/occupancy, such as airports, metro stations, shopping malls, hotels, and buildings of high sensitivity, such as schools, kindergartens, hospitals, and elderly care centers to name a few.

**etalbond® A2** is a construction material, which allows the freedom of design in combination with superior technological features. Attractive and flexible it is easily installed and formed and is available in a wide array of highly durable and custom-made coatings, providing architects and designers with numerous possibilities for materializing their ideas.

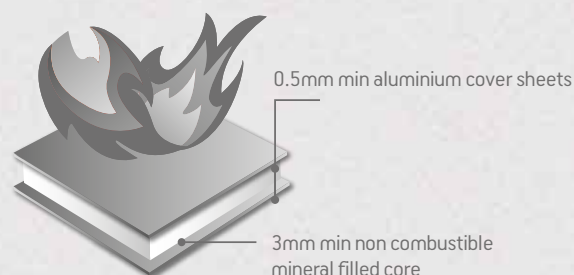
#### The advantages of etalbond® A2

- Lightweight combined with flexural strength and absolute flatness
- Simple and fast to process and fabricate - can be easily folded and bent with the use of simple tools
- Formable in the most intricate 2-D and 3-D shapes
- Easy to handle on site with pre-fabricated panels, shorter construction times and cost reduction
- Weather proof and easy to clean due to the high quality of materials used in its manufacturing
- Noise and vibration-absorption - no extra sound-damping needed
- Ideal for back ventilated façades
- Large variety of colours and custom made shades available - unlimited design options
- Produces no toxic gases in case of fire
- Produced with Cr-free and Lead Free materials in an environmentally responsible manner
- Fully Recyclable, environmentally friendly - scrap can be recycled for the production of new material

#### Fire behaviour

**etalbond® A2** composite panels are non-flammable and do not actively contribute to combustion. During the life cycle of **etalbond® A2**, there are no emissions of environmentally hazardous substances and there is no production of toxic fumes in the case of fire.

**etalbond® A2** is classified as A2 for incombustibility, s1 lowest possible smoke emission and d0 for no droplets when the panel is exposed to fire according to the most stringent European Norm EN 13501-1.



## YOUR PARTNER TO CUSTOMIZATION

### Power to Imagine

**Elval Colour**'s specialized personnel will assist you in identifying and implementing the optimum coating system for your construction project.

Cost, quality, aesthetics and delivery time, will be all optimized, in order to maximize performance, weathering resistance, and the visual impact of your project.

### Applications

**etalbond®** is an absolutely flat panel with extreme strength and low weight. This very flexible material, can add a touch of architectural elegance and an attractive design in both low and high rising buildings, canopies, fascia, roof edges and building interiors.

You can  
use it for:

- > *Building Renovations*
- > *Internal Partitions*
- > *False Ceilings*
- > *Bus Terminals*
- > *Gas Stations*
- > *Column Covers*
- > *Curved Fascia*
- > *Building Entranceways*
- > *Toll Stations*
- > *Container Constructions*
- > *Machine Coverings*
- > *Equipment Enclosures*
- > *Architectural Claddings*
- > *Internal Wall Coverings*
- > *Internal Decoration*
- > *Signage*
- > *Exhibition Stands*









## AN INSPIRING RANGE OF COLOURS AND SURFACES

In Architecture, colour is a basic medium of expression and it can have a different meaning for every investor, architect, building occupant or observer. That is why **etalbond®** is offered in a variety of coating surfaces to match imagination, feeling and inspiration.



### Solid Colours

From vibrant colours to conservative shades, solid colours create a unified appearance without the need of special effects. The whole range of RAL and Pantone at your disposal.

**Gloss: from 5% to 80+%**

### Premium Metallic and Dual/Prismatic

Changing light conditions and perspectives give these elegant colours a glowing, vivid appearance.

**Gloss: from 5% to 80+%**





*The “space effect” is created by colour and light. As an essential component of architecture, a colour combination creates individual space and supports perfectly the utilization of the building.*

### Textured

The elements of nature and their textures, inspired the **Ceramic/TX** line which creates a special structured effect. A specially developed coating enables aluminium to be used as a substitute for ceramic or stone material. The **Ceramic/TX** line offers the lower construction weight of the coil coated aluminium and tailor made natural looking finishes.

**Gloss: <10%**

### Special Imitations

Corten (Oxidised Steel), Paginated Copper, Marble, Granite and Wood Imitations. Our technology and know-how allows us to match the aesthetic appeal of natural materials with the texture which is identical to the real thing.

# FUNCTIONALITY MEETS AESTHETICS

## **agraphon®**

A special treatment of coated aluminium products with anti-graffiti properties. This is achieved by a transparent coating which preserves the colour and the appearance of your building façade or corporate identity.

## **arypon®**

A permanent treatment of coated aluminium products that provides "Easy to Clean" surfaces with the help of nano-technology. These fluoropolymers react with the coating surface to create a low energy coating that can be cleaned very easily.

### **Phosphorescent Coatings**

A specially developed, innovative, and highly durable polyurethane coating that glows intensively when it gets dark. Useful for highly crowded places, such as conference rooms, corridors, staircases. When the lights go out, the room is lit intensively for a short period of time avoiding outbreaks of panic. Phosphorescent Coatings have a cream white appearance in day light and are also suitable for outside applications.

### **High Reflectivity Coatings**

A certified innovative coating system offering more heat reflectivity than virtually any other roofing and cladding material available, letting the user realize significant energy savings in a wide variety of colours.

### **Anti-bacterial**

A certified coating based on silver ions which capture the bacteria. The Anti-bacterial coating is applied on top of the aluminium and is suitable only for interior applications. It has been tested and certified successfully against a multitude of bacteria.



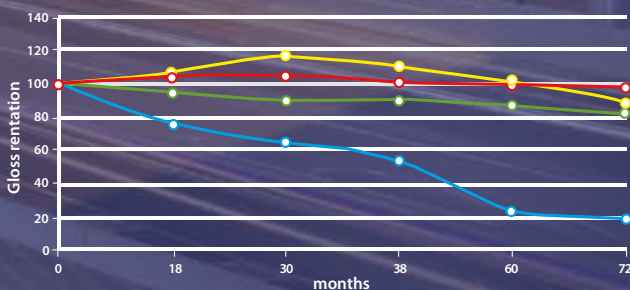
## COATING QUALITY with RESPONSIBILITY, GLOBAL REACH and HIGH DEGREE OF CUSTOMISATION

Our skilled personnel apply coatings and colours in modern lines in order to ensure consistent and superior quality. We use coatings which are Chrome and Lead Free and provide a safe working environment for our workers. Our manufacturing facilities utilize the most modern technology to ensure environmental responsibility. As far as quality, environment, responsibility and sustainability are concerned, we produce with care. Our coatings can be designed to match the most vivid architectural imagination and most stringent durability criteria. We will meet with you to discuss your project needs anywhere in the world.

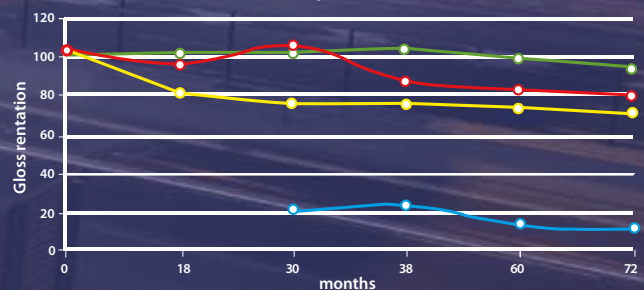
### A Highly Weatherable and Sustainable Coating 80% PVDF

High-performance 80% polyvinylidene fluoride (PVDF) coatings offer the flexibility to select nearly any colour, while shielding against aging, weathering, and pollution. Time-proven 80% PVDF coatings meet the most demanding, exterior, architectural specifications and exhibit the best possible bending performance. The resin system incorporated into the paint coating provides the key properties that determine the coating's characteristics and performance. The PVDF bond, with every carbon-hydrogen (C-H) bond adjacent to four C-F bond, provides a chemically inert coating, with the ultimate resistance to ultraviolet (UV) light degradation. In the recent years 80/20 PVDF systems are used more and more to gain even more UV resistance and better coating elongation properties. The 80/20 PVDF offers the optimum combination of formability and durability compared to other PVDF systems which are cheaper and non-suitable alternatives like 60/40.

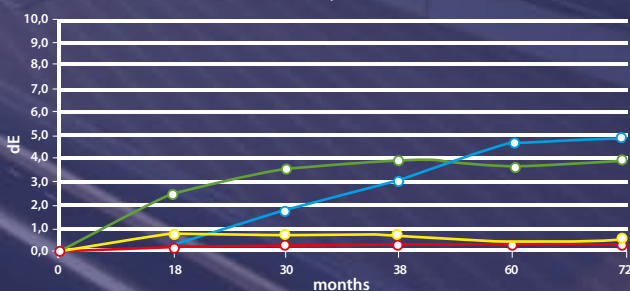
BLACK TOP COATS, FLORIDA 45° SOUTH



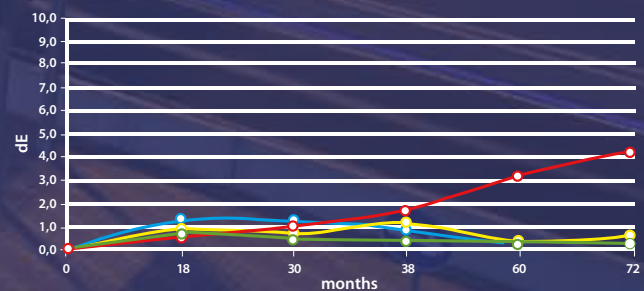
RED TOP COATS, FLORIDA 45° SOUTH



BLACK TOP COATS, FLORIDA 45° SOUTH



BLACK TOP COATS, FLORIDA 45° SOUTH







## SHAPING ADVANTAGES

- **etalbond®** composite panels consist of advanced pre-painted aluminium for building and construction industry.

- **etalbond®** offers architects, constructors and designers, a lightweight, versatile, strong and aesthetically appealing solution for all kinds of buildings and environments.

- Whether it is parametric design of bold 3D formations, **etalbond®** aluminium alloys and coatings are produced to cope with the most demanding formations.

- **etalbond® A2** is the only A2 panel in the world that can be curved with ease.





etalbond® 4 mm

5,6 kg

Aluminium 3,3 mm

8,9 kg

Steel 2,4 mm

18,7 kg

Fibre cement 5,8 mm

11,7 kg

Flexural rigidity E-J

Weight kg/m<sup>2</sup>

Comparison of thickness and weight with the same flexural rigidity

## FLEXURAL RIGIDITY

Aluminium cover Sheets and a mineral core ensure an impressive weight/flexural rigidity ratio, even in large panel sizes. Thanks to its excellent flexural rigidity, **etalbond®** remains stable in terms of shape and flatness, even under extreme temperature fluctuations.

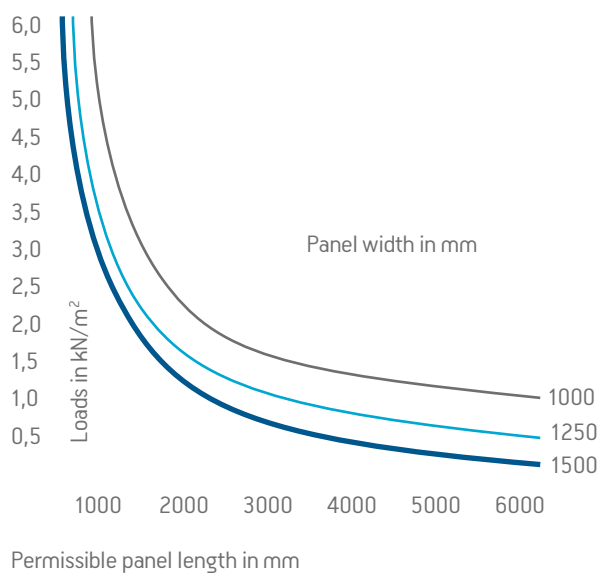




## LOADING AND PANEL DIMENSIONS

This chart helps us to determine the maximum panel size of **etalbond®** panels supported on all 4-sides based on the characteristic stress of  $79 \text{ N/mm}^2$  (without safety factor).

**etalbond®** 4 mm







## etalbond®

	Standards	Unit	3mm	4mm	6mm
PANEL DIMENSIONS					
Thickness of Aluminium Layers		mm	0.5	0.5	0.5
Width		mm	standard: 1250, 1500 upon agreement: min 1000 - max 2000		
PANEL TOLERANCES					
Panel thickness		mm	±0.2		
Panel width		mm	-0.0 / +4.00		
Panel length		mm	≤4000mm: -0.0 / +4.00		
			4001 - 6000mm: -0.0 / +6.00		
			6001 - 8000mm: -0.0 / +10.00		
Diagonal difference		mm	3.00mm		
TECHNICAL PROPERTIES					
Section modulus (W)	DIN 53293	cm <sup>3</sup> /m	1.05	1.54	2.53
Effective Stiffness (ExJ <sub>eff,cal</sub> )		Nm <sup>2</sup> /m	111	206	531
Alloy	EN 573-3		EN AW - 3105		
Temper of Aluminium sheets	EN 515 / EN 1396		H44 (Painted)		
Modulus of Elasticity (E)	EN 1999 1-1	N/mm <sup>2</sup>	70000		
Tensile Strength (Rm)	EN 1396	N/mm <sup>2</sup>	≥150		
Yield Strength (Rp0.2)	EN 1396	N/mm <sup>2</sup>	≥120		
Elongation (A <sup>50</sup> )	EN 1396	%	≥3%		
Linear Thermal Expansion		mm/m	2.4 for temperature difference of 100°C		
SURFACE PREPARATION & PAINT CHARACTERISTICS					
Surface Preparation			With chemical preparation (Degreasing, Passivation)		
Lacquering			Coil Coating		
Visible Surface			PVDF		
			or VHDPE		
Back Surface			Protective Primer		
TEMPERATURE BEHAVIOUR					
Excellent behaviour in temperatures			From -50 to +80		
SURFACE QUALITY					
Dents, marks, hits, grooves, stains etc		Acceptable when not visible at a distance ≥2m at an angle of 90°			



## etalbond® PE

CORE: LDPE		Unit	3mm	4mm	6mm
PANEL DIMENSIONS					
Weight	kg/m <sup>2</sup>	4.6	5.5	7.4	
Length	mm	standard: 3200 upon agreement: 1000-13000			
ACOUSTICAL PROPERTIES					
Sound Transmission Loss (Rw)	dB	≥23	≥24	≥25	

## etalbond® FR

CORE: Fire Retardant core		Unit	3mm	4mm	6mm
PANEL DIMENSIONS					
Weight	kg/m <sup>2</sup>		6.0	7.6	10.9
Length	mm		standard: 3200 upon agreement: 1000-13000		

## etalbond® A2

CORE: Mineral filled core with Polymer adhesives		Unit	3mm	4mm	6mm
PANEL DIMENSIONS					
Weight	kg/m <sup>2</sup>		6.1	7.9	11.4
Length	mm		standard: 3200 upon agreement: 1000-13000		

# FIRE CLASSIFICATION

etalbond®			etalbond® FR		etalbond® A2	
Country	Test according to	Classification	Test according to	Classification	Test according to	Classification
EU	EN 13501-1	B-s1, d1 (closed joints) E (open joints)	EN 13501-1	B-s1, d0	EN 13501-1	A2-s1, d0
Austria			ONORM B 3800-5	Passed	ONORM B 3800-5	Passed
France	NFP 92-501	M1	NFP 92-501	M1	NFP 92-501 NF EN ISO 1716	M0 (Non Combustible)
Germany	DIN 4102	B2				
Hungary			MSZ 14800-6	Passed		
United Kingdom	BS 476-part6 BS 476-part7	Class 0 Building Regulations	BS 476-part6 BS 476-part7	Class 0 Building Regulations		
Italy	CSE RF 2/75/A, RF 3/77	1 (UNO)				
Poland			PN-90/B-02867	NRO	PN-90/B-02867	NRO
Switzerland			VKF	5.3	VKF	6q.3
USA	ASTM E84 NFPA 285	Class 1	ASTM E84 NFPA 285	Class 1 Passed	NFPA 285	Passed
UAE			ASTM E84 (core only)	Class 1	ASTM E84 (core only)	Class 1
Ukraine			ГОСТ 30244-94 ГОСТ 30402-96 ГОСТ 30444-97 4.18 ГОСТ 12.1.044-89 4.20 ГОСТ 12.1.044-89	Г1 В1 РП1 Δ2 Т1		





## PROCESSING - ROUTING - FOLDING

Due to its adaptability **etalbond**® can be shaped by means of simple processing techniques. This routing and folding technique, enables a variety of shapes and sizes to be manufactured.

After having routed the material (one side) the untouched outer cover sheet can be bent manually giving an exact and clean folding line which follows the routed groove. All standard machinery devices can be used for the following pictogram below.



CUTTING & SAWING



DRILLING



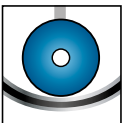
PUNCHING



CONTOUR MILLING



JOINING  
& FIXING TECHNIQUES



BENDING - FORMING

Routing & Folding





# VFS SYSTEMS

## AXONOMETRIC DEPICTIONS



### Bravo W

Bravo W is the optimal solution for large and flat façades, ensuring fast and secure installation of cassettes from aluminium composite materials (**etalbond®**). The system allows the movement of the façade material due to various thermal expansions without compromising the secure attachment of the cassettes.



### Bravo H

Bravo H system is designed for installation of composite materials (**etalbond®**) by using the easiest and simple cladding principle (tongue and groove). The system is an optimal solution for large and flat façades.



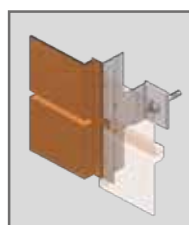
### Bravo U

Bravo U is a system for installation of composite materials (**etalbond®**), using the most successful principle of panel hanging. The system is an optimal solution for large and flat façades. It ensures fast and secure installation of the composite panels and it is an optimal response to the thermal expansion of the material.



### Bravo Y

Bravo Y system is designed for installation of composite materials (**etalbond®**) by using the most successful principle of cladding. The system is an optimal solution for large and flat façades.



### Vario etalbond®

The system is specially designed for mounting of composite material (**etalbond®**), produced by Elval Colour. The system offers:

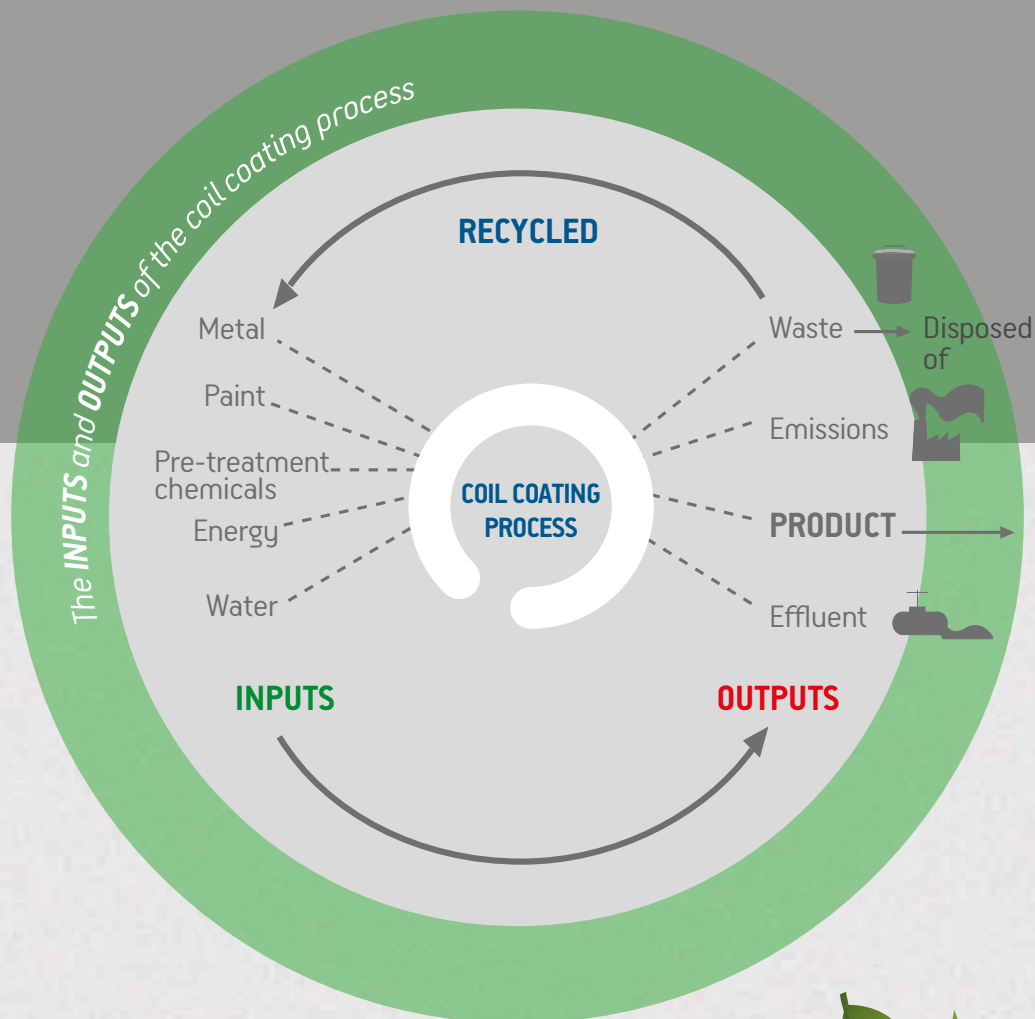
- Optimal solution for large and flat façades
- Assuring easy, fast and secure mounting of the composite panel
- Optimal behaviour to the thermal expansion of the composite panel



## SUSTAINABILITY - RECYCLABILITY

- **etalbond®** is Fully Recyclable.
- **etalbond®** has low waste in manufacture and in use.
- Elval Colour uses controlled processes with a focus on energy, emissions, resource usage and environment.
- Coil coating is the best available technology for applying paint to metal and the most environmental friendly as it helps minimizing environmental problems such as emission of volatile organic compounds (VOC), high usage of chemicals, water, and energy, and the disposal of waste.
- Emissions of volatile organics are very tightly controlled by the coil coating process to the extent that they are virtually eliminated.
- Pre-painted metal consistently out-performs post-painted metal in longevity, corrosion protection, and long-term aesthetics.

- Water used in our processes is 100% re-utilized resulting in no water wastage.
- The continuous nature of the coil coating process and the efficiency of roller coating means that waste is very much reduced and wastage of paint is virtually eliminated, with most potential waste being re-used in paint formulation.
- Most coatings are produced without harmful heavy metals or hazardous solvents.





**100%**

Recyclable material  
Respects  
the environment

Elval Colour

3<sup>rd</sup> Km Inofyta Peripheral Rd.

32011, Saint Thomas, Viotia, Greece

tel: +30 22620 53564, fax: +30 22620 53581

ecs@elval-colour.com

**www.elval-colour.com**



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