



ArcelorMittal

# Arval

by ArcelorMittal

# MATERIAL GUIDE



PRESTIGE | TEXTURE | EXCELLENCE | FREEDOM | SUBSTANCE

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## DESIGN YOUR STEEL SOLUTIONS WITH THE APPROPRIATE MATERIAL AND THE RIGHT APPEARANCE

We invite you to discover all the materials available and meeting all the requirements for our solutions **Arval by ArcelorMittal Construction**. Since architecture has become a new language and a brand image, which goes far beyond simple functional needs, your requests for advice are forever increasing.

Through this guide, our aim is to help you to select the material best suited to your project. In order to make effective use of this document and choose the system which meets your requirements, we suggest you use it together with the **Colorissime by ArcelorMittal** because not only are technical properties essential but also the choice of colour and appearance.

All the architects who tasted it say that to build with steel, is to rediscover the trade of architect, to rediscover the creation. "Answers" given by steel in the new requirement of sustainability do not have difficulty to convince since they are adapted and allow a strong signature of the works.

**ArcelorMittal Construction** is the leader in transforming coated steel and as such, has contributed to this evolution. How ?

By offering you, in your capacity as designers, new products, completely new applications using traditional materials, and, above all, the certainty of a strong image, innovative aesthetics and daring architectural designs. And because we are your partner standing beside you and ready to listen to you, you can rely on the Arval expertise and technical services.

Our steel solutions give relevant and varied answers to the question of the respect of sustainability, more and more relevant.

- > The building phase which uses the constructive mode called "dry" limits its duration while reducing the dependent nuisances.
- > The use of the building for which our solutions allow, while guaranteeing the comfort of the user, the respect of the strongest requirements.
- > The phase of destruction for which the management of waste is facilitated by limiting them and allowing them recycling.

Today, many superb buildings exist. Some of them reflect styles in the vanguard of architecture. Our material, services and techniques are designed to give you ideas, the means and above all the pleasure of accomplishing truly signed architected buildings.



## General information

The cladding elements are manufactured from coils of coated steel or stainless steel. The sheet is uncoiled, flattened and sheared lengthwise. Then, it is cold processed on a roll-forming, panel or bending line. The elements are then stacked and packaged at the end of the manufacturing line.

The adhesion of the zinc to the base metal (iron-zinc combination) occurs during the continuous galvanization process and guarantees increased resistance to corrosion, and so does the cathode protection provided by the zinc. Iron-zinc cathode protection checks the spread of rust on the sheared edges or in the fixing holes via a transfer of zinc by electrolysis. An important feature of metallic coated steel on a continuous process is that it is rust-resisting, not only on the zinc coated sides but also when cut. In use of non pre-painted galvanised steel should there be any efflorescent (white rust) caused by a deposit of hydrated zinc oxide, zinc hydro carbonate or zinc oxychloride, it will not alter the mechanical properties of the profiles steel sheeting. The galvanised steel sheets are passivated in a chromium VI-free chemical solution in order to resist against white rust during the transport and the storage. Depending the manufacturing, a whitening discoloration could occurs. This phenomenon does not modify the properties of the material. In pre-painted steel, small scratches are protected by zinc. Even though we recommend to retouch with an appropriated paint.

Highly elaborated techniques are used to manufacture **Arval by ArcelorMittal Construction** pre-painted steel, which have solved many painting problems, thus giving a high performance product.

The sheets are industrially manufactured under rigorous controls, which gives such a good technical quality to **Arval by ArcelorMittal Construction** pre-coated steel that it can be used in a very wide range of sectors:

- > industrial buildings
- > office buildings
- > tertiary sector
- > storage buildings
- > goods and equipment buildings
- > etc...

### QUALITY MANAGEMENT

At each stage in production, an assessment procedure is followed in order to check that the appearance of the product complies with the standards in force and also that it meets the customer's requirements. Laboratory tests are performed by the quality department in order to verify the conformity of the mechanical properties of the steel and the coating.

### ENVIRONMENT

All our manufacturing processes were conceived in respect of the environment. Rejections resulting from the surface treatment are treated in accordance with the most strict European regulations. Gas rejections resulting from the pre-painting lines are treated by incineration. Performances of unpollution installations are supervised daily. ArcelorMittal Construction production is done by respecting obviously the environment. The respect of the sustainability is certainly one of the success keyfactors for the pre-painted steel. In accordance with the NF P 01-010 standard, Health and Environmental statement forms are available, one request, for the following coated steel products:

- > structural decking and floor decking
- > single skin roofing profile
- > cladding tray
- > sandwich panels
- > partition

**Our priority is to offer a range of products with respect of the environmental impact, all traces of heavy metals have been removed for making the colours offered by Arval.**

**Our manufacturing process (Contrisson plant) is certified ISO 14001.**



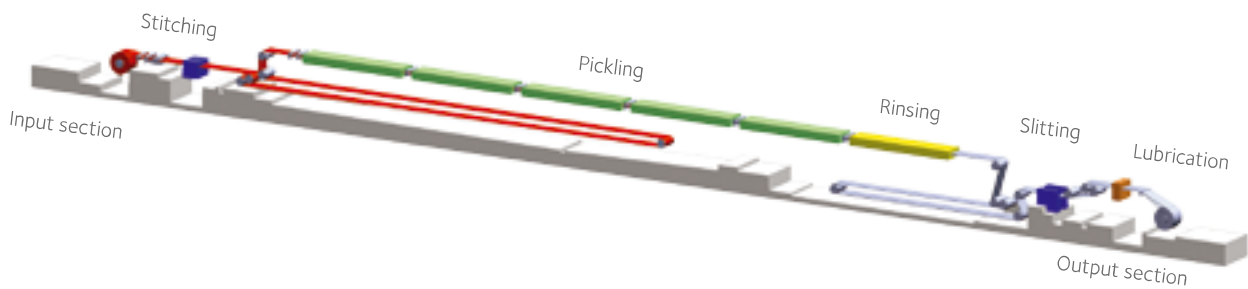


# Manufacturing process

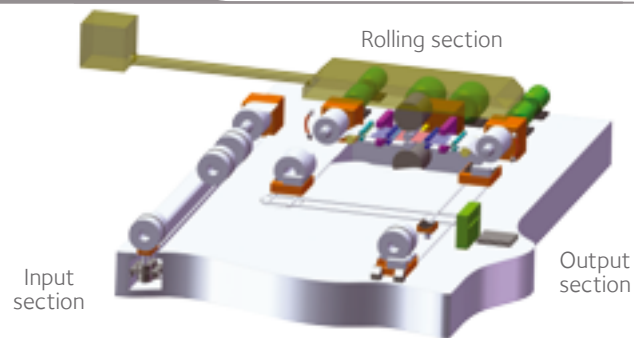
## Tools

Hi-tech process to accompany 3<sup>rd</sup> millenium builders in their projects.

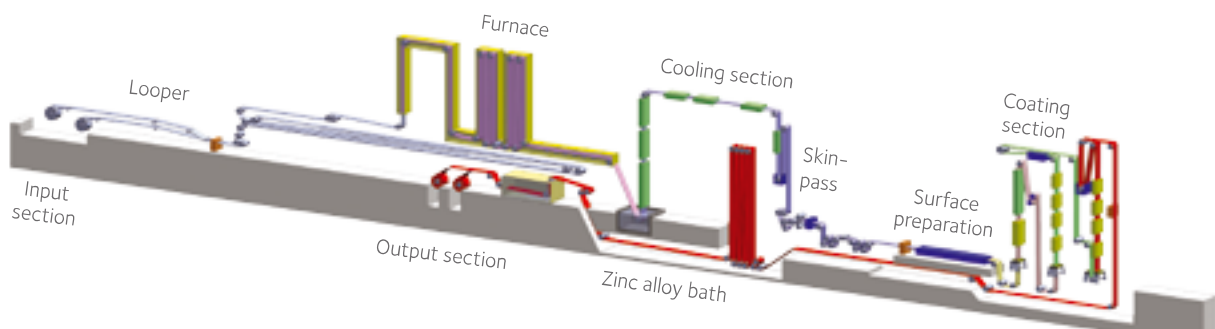
### PICKLING LINE



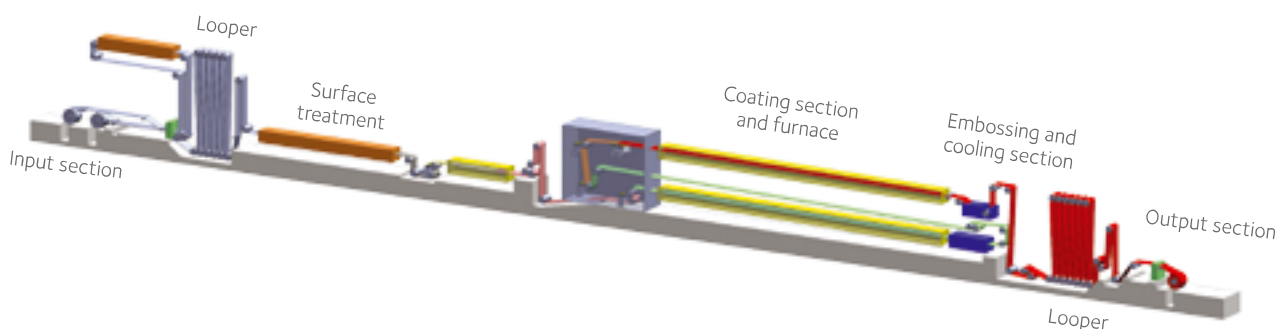
### COLD ROLLING



### GALVANISING AND PREPAINTING COMBLINES LG1 & LG2



### PREPAINTING LINE L3



## Steel mechanical properties

The steel is hot dip coated with a metal alloy on the continuous line and follows the NF EN 10346 standard. We have selected the most appropriate steel grade, bearing in mind the use intended for the products.

Excellent corrosion resistance is obtained by spreading the coating over the surface of the steel substrate.

### S 280 GD

Minimum conventional yield stress  $R_{p_{0,2}} = 280$  MPa  
Minimum tensile strength  $R_m = 360$  MPa  
Minimum elongation at failure  $A_{80} = 18$  %

### S 320 GD

Minimum conventional yield stress  $R_{p_{0,2}} = 320$  MPa  
Minimum tensile strength  $R_m = 390$  MPa  
Minimum elongation at failure  $A_{80} = 17$  %

### S 350 GD

Minimum conventional yield stress  $R_{p_{0,2}} = 350$  MPa  
Minimum tensile strength  $R_m = 420$  MPa  
Minimum elongation at failure  $A_{80} = 16$  %

**All our stainless steel grades have a minimum yield stress  $R_{p_{0,2}}$  equal to 300 MPa.**

Stainless steel is a steel which contains at least 10,5% of chromium, less than 1,2 % of carbon, as well as alloying elements.

Its corrosion resistance is an intrinsic property obtained by the reaction between chromium and oxygen, thus creating a very fine self-protecting passive layer.

The surface can be changed by applying mechanical treatment or by hot dip surface tinning.

These materials come under the NF EN 10088 standard.

**We have selected for you, in the Colorissime by ArcelorMittal, a range of appearances and colors available in standard, for each type of coating described in the product sheets.**



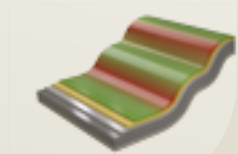
## ArvalTrust, guarantee certificate

Coating systems covered by the ArvalTrust guarantee

### The ArvalTrust charter

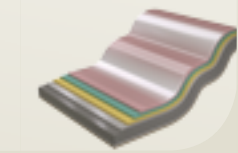
#### GUARANTEE

- > the non-boring of the steel substrate by corrosion,
- > the integrity of painting film (observed after cleaning with water),
  - > the aesthetical aspect (observed after cleaning with water),
- > uniform aging of the color for the same exposure and the same facade.



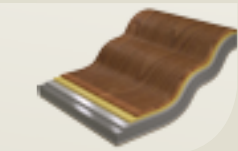
#### OFFER

A range of building solutions made of prepainted steel that are sustainable in their manufacture, use and disposal thanks to increased resistance properties and components that respect the environment.



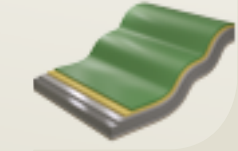
#### PROPOSE

New properties for high-performance materials.



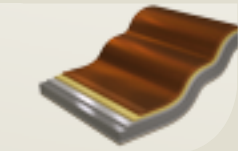
#### IMPROVE

The quality of our building solutions constantly.



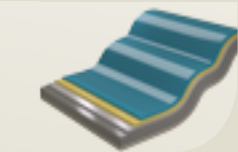
#### DEVELOP

Clean production procedures under WCM (World Class process).



#### PROTECT

The environment by reducing our CO<sub>2</sub> emissions and encouraging recycling.



ArvalTrust cover coating systems as per COLORISSIME

HAIRPLUS . HAIRULTRA® . AUTHENTIC . EDYXO® .  
NATUREL . HAIRFLON® . KEYRON® 150 . KEYRON® 200 . HAIREXCEL® .  
R'UNIK . INTENSE . PEARL . SINEA® . FLONTEC® . IRYSA®

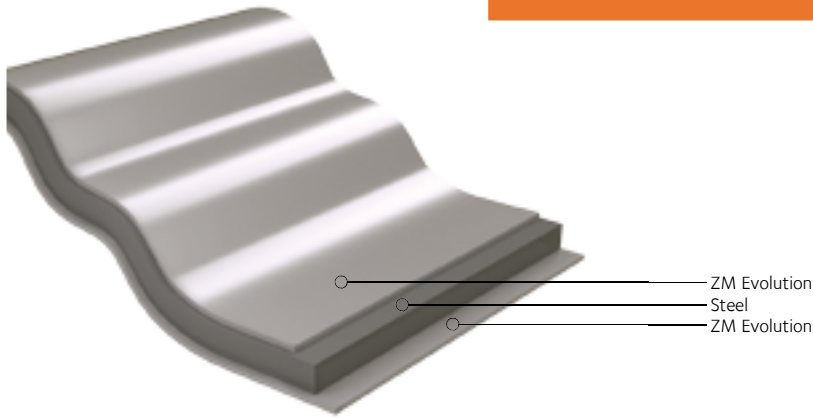


Confidence in ArvalTrust Guarantee protecting your investment over decades. Contact our specialists for full information on lasting warranty performance requirements for your building envelop (environmental questionnaire, inspection advices and maintenance instructions).

Any ArvalTrust Guarantee must be validated / authorized by **ArcelorMittal Construction** and will be decided prior to order upon customers application-declarations as requested in our specific guarantee-application.

*Systems , Solutions and Components for creative Architecture*

A special metallic coating able to preserve natural resources



*The optimal protection for a new generation of steel*

### Standards in force

NF EN 10346, P 34-310

CSTB: ETPM AC2012697

SITAC: SCO799-13

### Type of coating

Metallic coating based on zinc-aluminium magnesium alloy defined by " ZM " and described in a CSTB agreement (ETPM AC2012697) and SITAC agreement (SCO799-13)

### Appearance and applications

Homogeneous, grey, spangle-free aspect  
Very low waviness allowing nice aspect



Cladding and roofing



Structural decking and floor



Trays



Partitions

### Incompatibilities

Copper, lead, non protected steel, plaster, wood acids, oak and chesnut.

Brasing with tin-lead alloy is not suitable.

### Selection guide

#### Outdoor

Passivated metallic coating	Rural non polluted	Urban and industrial		Marine				Special	
		Normal	Severe	20 to 10 km	10 to 3 km	Coast (< 3 km)	Mixed	High U.V.	Special
ZM175	A	B	C	B	C	C	C	A	C
ZM275	A	A	B	A	B	B	B	A	B

#### Indoor

Passivated metallic coating	Not aggressive				Aggressive
	Low humidity	Medium humidity	High humidity	Very high humidity	
ZM80	A	C	C	C	C
ZM120	A	A	B	C	C
ZM175	A	A	B	B	B
ZM275	A	A	A	B	B

**A:** the product is suitable

**B:** as per survey

**C:** the product is not suitable

A protection which showed its mettle

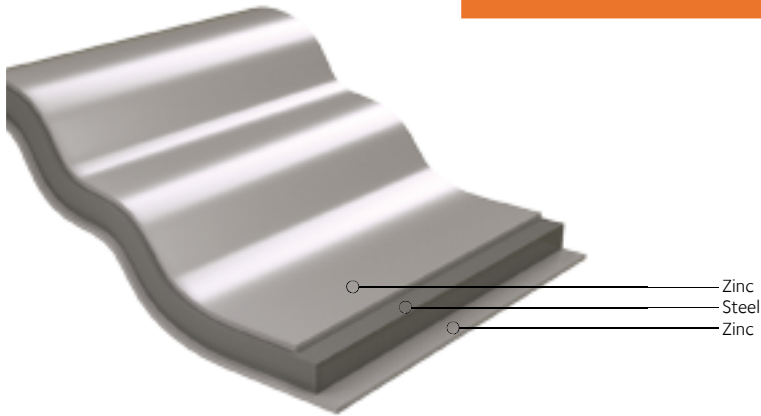
A well-known standard

Standards in force

NF EN 10346, P 34-310

Type of coating

Metallic coating of at least 99% of zinc (defined by Z) and following the standard EN10143

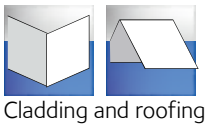


### Appearance and applications

No spangle  
Homogeneous metallic aspect

### Incompatibilities

Copper, lead, non protected steel, plaster, wood acids, oak and chesnut.



### Selection guide

#### Outdoor

Passivated metallic coating	Rural non polluted	Urban and industrial		Marine				Special	
		Normal	Severe	20 to 10 km	10 to 3 km	Coast (< 3 km)	Mixed	High U.V.	Special
Z 275	A	B	C	B	C	C	C	(1)	C
Z 350	A	A	B	A	B	B	B	(1)	B

#### Indoor

Passivated metallic coating	Not aggressive				Aggressive
	Low humidity	Medium humidity	High humidity	Very high humidity	
Z 180	A	C	C	C	C
Z 275	A	A	B	C	B
Z 350	A	A	B	B	B

**A: the product is suitable**

**B: as per survey**

**C: the product is not suitable**

(1) Not relevant for this coating.

# STAINLESS STEEL

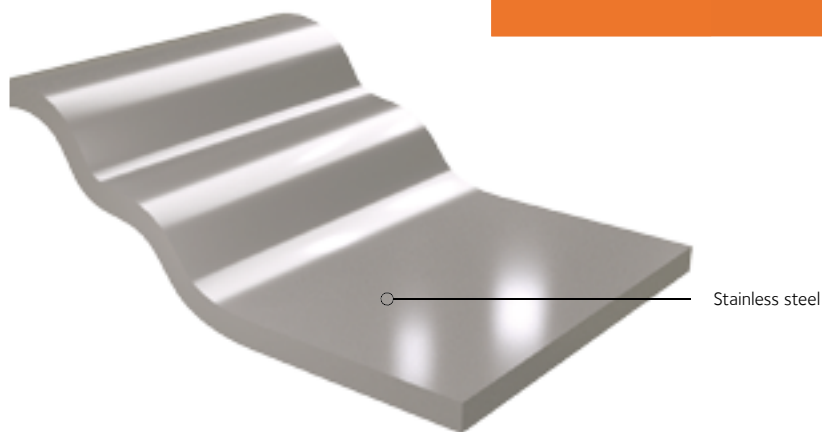
Substance

Stainless steel, the freedom of aspect

*Aesthetics first*

Standards in force

NF EN 10088



## Appearance and applications

**TOUCH TOP:** mat aspect  
**TOUCH 2B:** semi-mat aspect  
**TOUCH LINE:** light brushed aspect

**TOUCH GLOSS:** gloss aspect  
**AMBIANT TI-GOLD®:** gloss gold aspect  
**AMBIANT TI-LIGHT®:** brushed champagne aspect



Cladding and roofing



Structural decking and floor



Siding and Cassette

## Selection guide

### Outdoor

Stainless steel			Rural non polluted	Urban and industrial		Marine				Special	
Nuance	EN	AISI		Normal	Severe	20 to 10 km	10 to 3 km	Coast (< 3 km) (1)	Mixed	High U.V.	Special
18-9 E	1.4301	304	A	A	B	A	B	C	C	A	B
18-11 ML	1.4404	316 L	A	A	B	A	A	B	B	A	B

### Indoor

Stainless steel			Not aggressive			Weakly aggressive	Aggressive	Very aggressive
Nuance	EN	AISI	Low humidity	Medium humidity	High humidity	High humidity	Very high humidity	Very high humidity
18-9 E	1.4301	304	A	A	A	B	B	B
18-11 ML	1.4404	316 L	A	A	A	A	B	B

**A:** the product is suitable

**B:** as per survey

**C:** the product is not suitable

(1) For building locations within less than 1 km of any coast, consult us.



Robustness of steel,  
protection of zinc  
and inalterability of  
aluminium

### Natural beauty forever

#### Standards in force

NF EN 10346

Aluminized steel  
ETPM CSTB 2/11-1437

#### Type of coating

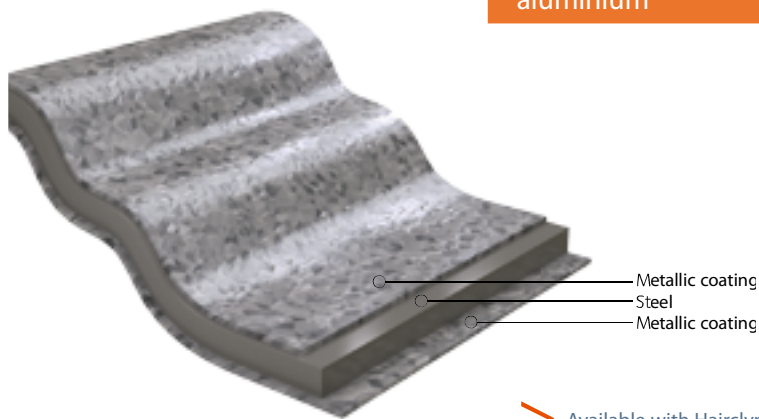
Aluminized steel with a composition of 4 % of zinc, and 1.6 % of silicium allowing

- a very high protection against corrosion
- an high sun reflectivity
- a long durability of brightness:

#### Incompatibilities

Copper, lead, non protected steel, wet concrete alkalinity

Brasing with tin-lead alloy is forbidden.



> Available with Hairclyn<sup>®</sup> functionality.

#### Appearance and applications

Silver natural aspect  
Small spangle with guaranteed size  
Anti-finger print passivator



Cladding and roofin



Siding and Cassette

#### Selection guide

##### Outdoor

Metallic coating KRISTAL <sup>®</sup>	Rural non pollutec	Urban and industri:		Marine				Special	
		Normal	Severe	20 to 10 km	10 to 3 km	Coast (< 3 km)	Mixed	High U.V.	Special
AZ 185	A	A	B	A	A	B	B	A	B

##### Indoor

Metallic coating KRISTAL <sup>®</sup>	Not aggressive			Weakly aggressive	Aggressive	Very aggressive
	Low humidity	Medium humidity	High humidity			
AZ 185	A	A	A	A	B	B

A: the product is suitable

B: as per survey

C: the product is not suitable

A magic steel,  
in harmonious dialogue  
with nature

*Create, it will do the rest*

Standards in force

EN10025-5 : 2005



### Appearance and applications

This steel develops a purlish brown patina that changes depending the natural environment and the timing.  
To ensure a nice aspect, proper management of run-off water is required to avoid staining (e.g. using gutters, drainpipes, etc.)



Siding and Cassette

### Incompatibilities

Permanent humidity and water retention  
Corrosive smokes  
Contact with de-icing salt  
Coastal aera

Our coques MD have been especially designed for Indaten®. For other siding or cassettes, please consult us.

### Main properties

Quality	Cr (%)	Cu (%)	P (%)	T (°C)	KV (J) min.	Thickness (mm)	EN 10025-5:2005	Equivalence ASTM
Indaten® 355A	0,3-0,8	0,25-0,55	0,06-0,15	0	27	1,7-26,5	S355J0WP	A242 A606 T2 A606 T4
Indaten® 355D	0,4-0,8	0,25-0,55	<0,030	-20	27	1,5-20	S355J2W	A588 quality A

Regarding the very particular behavior of this material depending the environments and the applications, the specification of the material will be defined by our technical team on the basis of the project details and its localization.

# Project examples

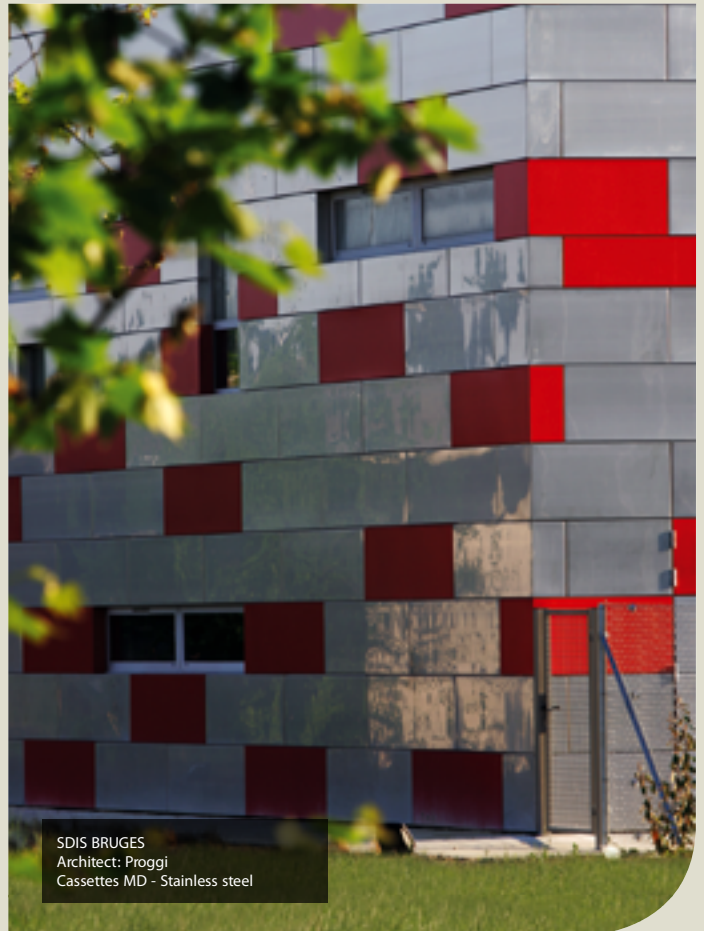
MULTIGENERATIONAL HALL  
Le Poinçonnet  
Architect: Antoine Réale  
Indaten®



SPORTS HALL  
Isle sur le Doubs  
Architect: Stéphanie Duffing  
Coques MD - Kristal®



SDJS BRUGES  
Architect: Proggi  
Cassettes MD - Stainless steel



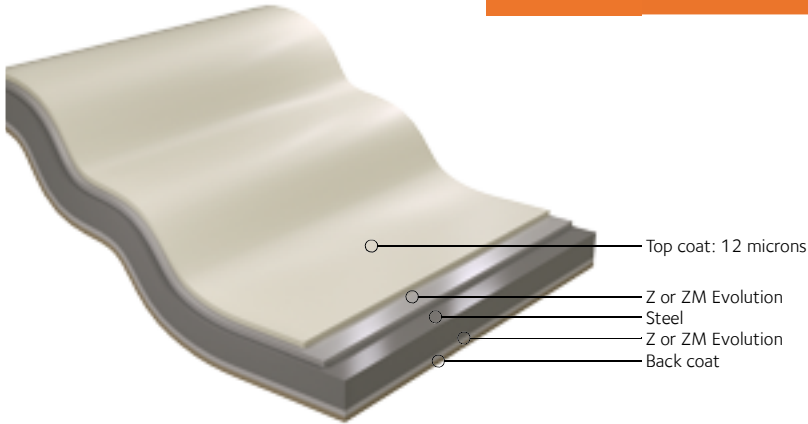


# INTERIEUR

Freedom



A luminous and durable color for inside



## Visual comfort

### Standards in force

**Metal substrate**  
 NF EN 10346  
 CSTB agreement (AC2012697)  
 DIBT (Z-30.11-61) or SITAC SC0799-13

**Organic coating**  
 XP P 34-301 and NF EN 10169

### Coating description

**Constitution**  
 Thermosetting polyester resin  
 Front: 12 microns of polyester finish directly bonded onto the substrate  
 Back: Back coat classe **II** or category **CPI2**

**Gloss**  
 Nominal: 30 GU

## Properties and applications



Industrial and tertiary roofing and cladding



Structural decking and floor



Trays



Internal side of sandwich panels

## Coating class

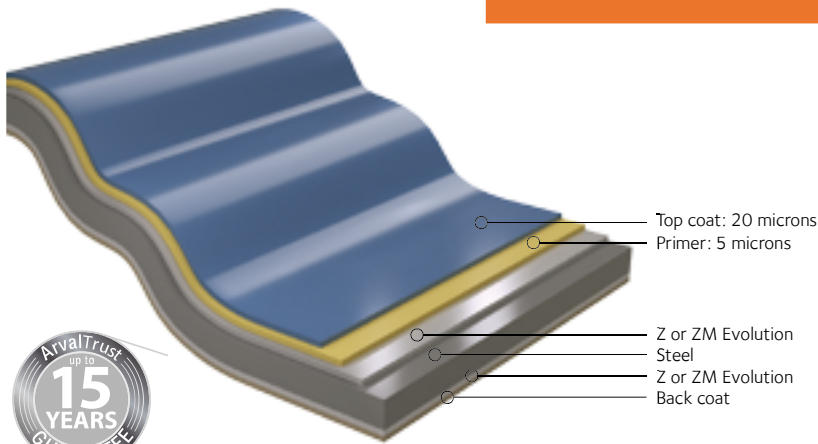
**Indoor environment**  
 Category **I to II** (XP P 34-301)  
 Category **CPI2** (NF EN 10169)

## Coating properties

Paint hardness	Pencil hardness	HB-B	Corrosion	Salt spray test	240 hours
				Humidity resistance	500 hours
Flexibility	Brutal indentation	No peeling	Chemical agents	Acids, bases and solvents Consult us	Acids and bases > Good
	Bending	5t without cracking			Mineral oils > Very good
	ERICHSEN	Very good			Aliphatic solvents > Good
Thermal resistance	Oven	Maxi: 90°C	Volatil organic compounds	Euroclass	Chlorine solvents > Poor
					Fire behavior
				A+	A+, according french labelling



### Infinity of colors



> Available with Hairlyn® functionality (Hairplus® clyn).

### Colour freedom

#### Standards in force

##### Metal substrate

NF EN 10346  
CSTB agreement (AC2012697)  
DIBT (Z-30.11-61) or SITAC SC0799-13

##### Organic coating

XP P 34-301 and NF EN 10169

#### Coating description

##### Composition

Thermosetting polyester resin  
Front: 5 µm of primer - 20 µm of top coat  
Back: Back coat class II or category **CPI2**

##### Possibilities

Back: 25 µm on request

##### Gloss

Hairplus®: nominal 30 GU  
Hairplus® M on request: nominal 15 GU

### Properties and applications

Good resistance to corrosion  
Good color and appearance stability  
Good outdoor durability  
Good forming ability



Urban

### Coating class

#### Indoor environment

Category **III a** (XP P 34-301)  
Category **CPI3** (NF EN 10169)

#### Outdoor environment

Category **III to IV** (XP P 34-301)  
Category **RUV3 and RC3** (NF EN 10169)

### Coating properties

Abrasion resistance	Sand blasting	40 liters	Corrosion	Salt spray test	360 hours
	TABER	60 mg		Humidity resistance	1000 hours
Flexibility	Brutal indentation	No peeling	Chemical agents	Acids, bases and solvents Consult us	Acids and bases > Good
	Bending	3t without cracking			Mineral oils > Very good
	ERICHSEN	Very good			Aliphatic solvents > Very good
Thermal resistance	Oven	Maxi: 90°C	Volatil organic compounds	A+	Chlorine solvents > Poor
					A1

Any Arval trust guarantee must be validated/authorized by ArcelorMittal Construction and the durability will be defined by our specialists after analysis of the environmental questionnaire.

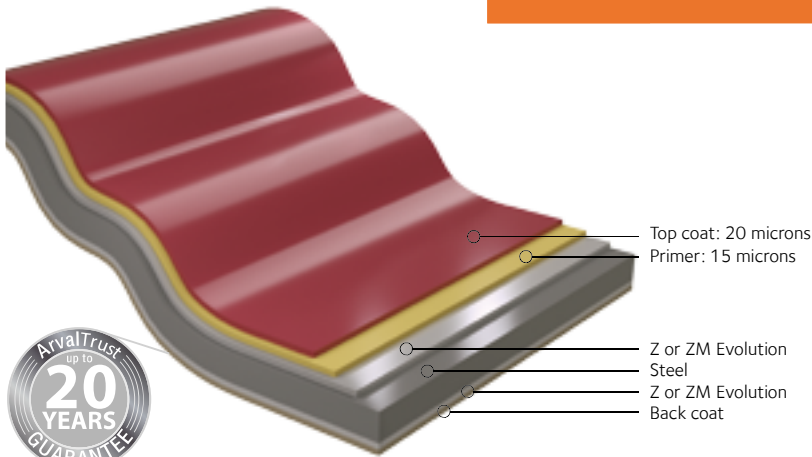


# HAIRULTRA®



Freedom

For sunny and maritime environments



Available with Hairclyn® functionality (Hairultra® clyn).

## Colors and performances

### Standards in force

**Metal substrate**  
NF EN 10346  
CSTB agreement (AC2012697)  
DIBT (Z-30.11-61) or SITAC SCO799-13

**Organic coating**  
XP P 34-301 and NF EN 10169

### Coating description

**Constitution**  
Thermosetting polyester resin  
Front: 15 µm of primer - 20 µm of top coat  
Back: Back coat class **II** or category **CPI2**

**Possibilities**  
Back: 35 µm on request

**Gloss**  
Nominal: 30 GU

## Properties and applications

Very good resistance to corrosion  
Good color and appearance stability  
Good durability outside  
Good forming ability



## Coating class

**Indoor environment**  
Category **III a** (XP P 34-301)  
Category **CPI4** (NF EN 10169)

**Outdoor environment**  
Category **VI** (XP P 34-301)  
Category **RUV4 and RC4** (NF EN 10169)

## Coating properties

Paint hardness	Pencil hardness	F-HB	Color Gloss	UV resistance (lab test)	ΔE ≤ 3 Gloss retention ≥ 80%	
	Sand blasting	40 liters		Corrosion	Salt spray test	500 hours
Abrasion resistance	TABER	60 mg	Chemical agents		Humidity resistance	1500 hours
	Brutal indentation	No peeling		Consult us	Acids, bases and solvents	Acids and bases
Flexibility	Bending	2t without cracking	Mineral oils			> Very good
	ERICHSEN	Very good	Aliphatic solvents			> Very good
Thermal resistance	Oven	Maxi: 90°C	Fire behavior	Euroclass	Single skin	Double skin
					Volatil organic compounds	A1
					A, according french labelling	

Any Arval trust guarantee must be validated/authorized by ArcelorMittal Construction and the durability will be defined by our specialists after analysis of the environmental questionnaire.





Good resistance in aggressive environments of agriculture

### Performances in corrosive conditions

#### Standards in force

##### Metal substrate

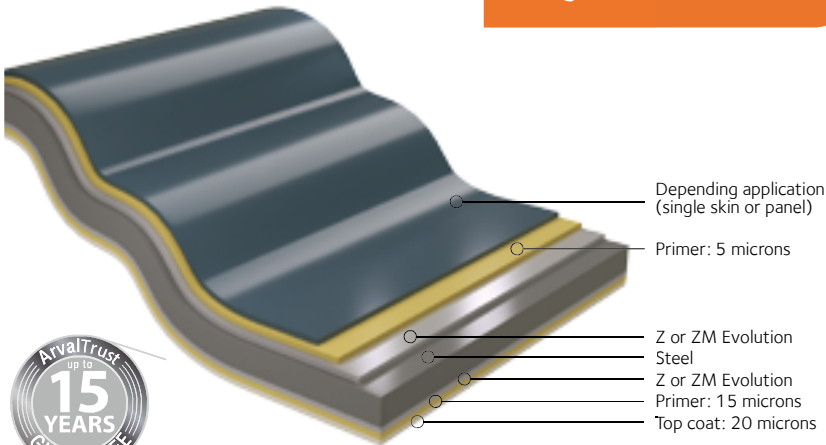
NF EN 10346  
CSTB agreement (AC2012697)  
DIBT (Z-30.11-61) or SITAC SC0799-13

##### Organic coating

XP P 34-301 and NF EN 10169

#### Applications

Food storage  
Ventilated livestock building  
Stable (consult us)



#### Coating description

Single skin		External: Hairplus® or Hairultra® Internal: Hairfarm 15 µm of primer - 20 µm of top coat Specific color
Sandwich Panel		External facing: Hairplus® or Hairultra® or Hairexcel® Internal facing: Hairfarm with reinforced back coat
Properties	Gloss	Nominal: 30 GU

#### Coating class

##### Indoor environment

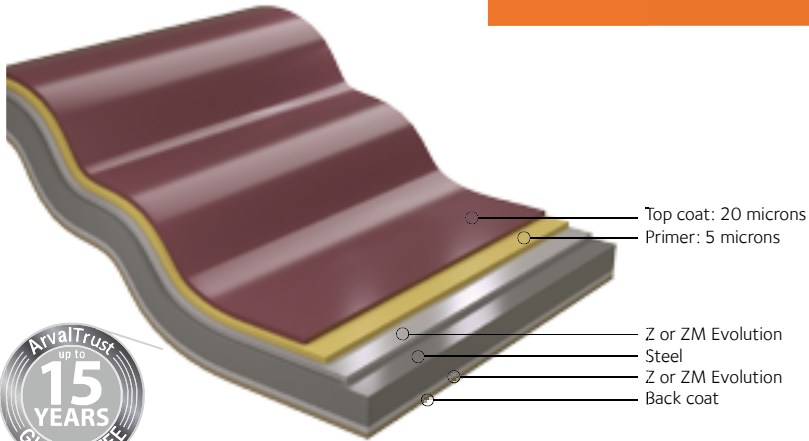
Category **III a** (XP P 34-301)  
Category **CP14** (NF EN 10169)

#### Coating properties

Abrasion resistance	Sand blasting	40 liters	Corrosion	Salt spray test	500 hours
	TABER	60 mg		Humidity resistance	1500 hours
Flexibility	Brutal indentation	No peeling	Chemical agents	Acids, bases and solvents Consult us	Acids and bases > Good
	Bending	2t without cracking			Mineral oils > Very good
	ERICHSEN	Very good			Aliphatic solvents > Very good
Thermal resistance	Oven	Maxi: 90°C	Fire behavior	Euroclass	Dependent on the constructive system. Consult us.
					Volatil organic compounds

Any Arval trust guarantee must be validated/authorized by ArcelorMittal Construction and the durability will be defined by our specialists after analysis of the environmental questionnaire.

Excellent stability of color and aspect



### PVDF Technology

#### Standards in force

##### Metal substrate

NF EN 10346  
CSTB agreement (AC2012697)  
DIBT (Z-30.11-61) or SITAC SC0799-13

##### Organic coating

XP P 34-301 and NF EN 10169

#### Coating description

##### Constitution

PVDF based thermoplastic fluoride resin (70%)  
Front: 5 µm of primer - 20 µm of top coat  
Back: Back coat class **II** or category **CPI2**

##### Possibilities

Back: 25 µm on request

##### Gloss

Nominal: 20 GU

#### Properties and applications

Good resistance to chemical agents, corrosion, abrasion and erosion  
Very good flexibility  
Very good anti-staining properties  
Excellent color and appearance stability  
Very good ultraviolet ray resistance  
Not recommended for roofing application



Urban



Industrial



Strong sunning

#### Coating class

##### Indoor environment

Category **III a** (XP P 34-301)  
Category **CPI3** (NF EN 10169)

##### Outdoor environment

Category **III to IV** (XP P 34-301)  
Category **RUV4 and RC3** (NF EN 10169)

#### Coating properties

Paint hardness	Pencil hardness	HB-B	Color Gloss	UV resistance (lab test)	$\Delta E \leq 2$ Gloss retention $\geq 80\%$	
Abrasion resistance	Sand blasting	60 liters	Corrosion	Salt spray test	360 hours	
	TABER	25 mg		Humidity resistance	1000 hours	
Flexibility	Brutal indentation	No peeling	Chemical agents	Acids, bases and solvents Consult us	Acids and bases > Very good	
	Bending	3t without cracking			Nitric acid vapors > Very good	
	ERICHSEN	Very good			Mineral oils > Very good	
Fire behavior			Euroclass		Single skin	Double skin
					A1	F
Thermal resistance	Oven	Maxi: 100°C	Volatil organic compounds	A+	A+, according french labelling	

Any Arval trust guarantee must be validated/authorized by ArcelorMittal Construction and the durability will be defined by our specialists after analysis of the environmental questionnaire.

Excellent stability of color and aspect even in the harshest environments

### PVDF Technology

#### Standards in force

##### Metal substrate

NF EN 10346  
CSTB agreement (AC2012697)  
DIBT (Z-30.11-61) or SITAC SC0799-13

##### Organic coating

XP P 34-301 and NF EN 10169

#### Coating description

##### Constitution

PVDF based thermoplastic fluoride resin (70%)  
Front: 15 µm of primer - 20 µm of top coat  
Back: Back coat class **II** or category **CPI2**

##### Possibilities

Back: 35 µm on request

##### Gloss

Nominal: 20 GU

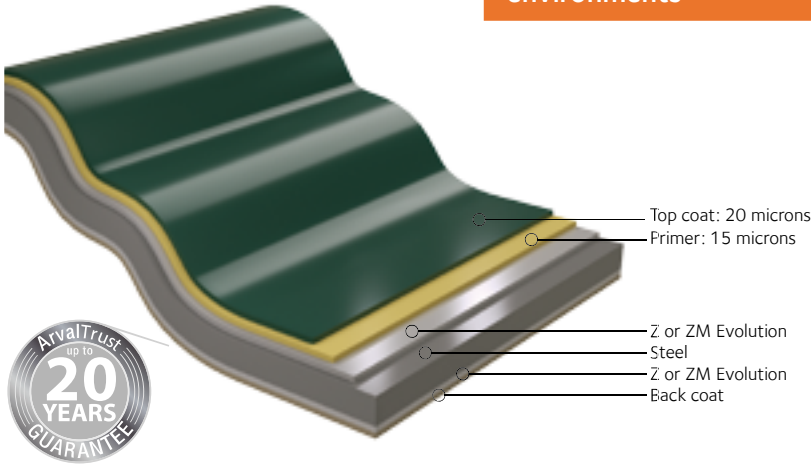
#### Coating class

##### Indoor environment

Category **IV b** (XP P 34-301)  
Category **CPI4** (NF EN 10169)

##### Outdoor environment

Category **VI** (XP P 34-301)  
Category **RUW4 and RC4** (NF EN 10169)



#### Properties and applications

Good resistance to chemical agents, to corrosion, abrasion and erosion  
Very good ultraviolet ray resistance  
Very good flexibility  
Excellent color and appearance stability  
Anti-staining properties



Urban



Marine



Industrial



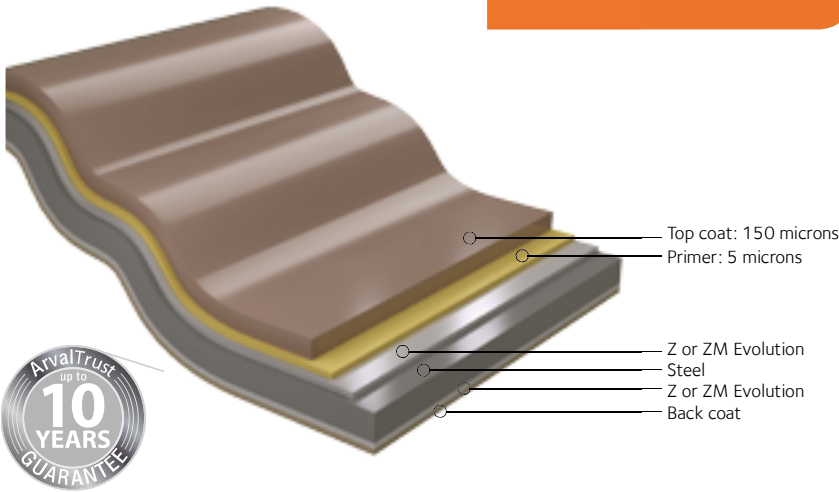
Strong sunning

#### Coating properties

Abrasion resistance	Sand blasting	80 liters	Corrosion	Salt spray test	500 hours
	TABER	25 mg		Humidity resistance	1000 hours
Flexibility	Brutal indentation	No peeling	Chemical agents	Acids, bases and solvents Consult us	Acids and bases > Very good
	Bending	2t without cracking			Nitric acid vapors > Very good
	ERICHSEN	Very good			Mineral oils > Very good
Fire behavior	Euroclass	Single skin	A1	Double skin	F
Thermal resistance	Oven	Maxi: 100°C	Volatil organic compounds	A+	A+, according french labelling

Any Arval trust guarantee must be validated/authorized by ArcelorMittal Construction and the durability will be defined by our specialists after analysis of the environmental questionnaire.

Exceptional resistance in the most aggressive environments



### The resistance

#### Standards in force

**Metal substrate**  
 NF EN 10346  
 CSTB agreement (AC2012697)  
 DIBT (Z-30.11-61) or SITAC SC0799-13

**Organic coating**  
 XP P 34-301 and NF EN 10169

#### Coating description

**Constitution**  
 Polyvinyl chloride based thermoplastic resin phthalate free  
 Front: 5 µm of primer - 150 µm of top coat  
 Back: Back coat class **II** or category **CPI2**

**Possibilities**  
 Back: 150 µm on request

**Gloss**  
 Nominal: 30 GU

### Properties and applications

Very good behavior in corrosive and aggressive atmospheres  
 Very good flexibility  
 Very good resistance to abrasion thanks to high thickness  
 Recommended when the ambient inside is severe



### Coating class

**Indoor environment**  
 Category **IV b** (XP P 34-301)  
 Category **CPI4** (NF EN 10169)

**Outdoor environment**  
 Category **V** (XP P 34-301)  
 Category **RUV3 and RC5** (NF EN 10169)

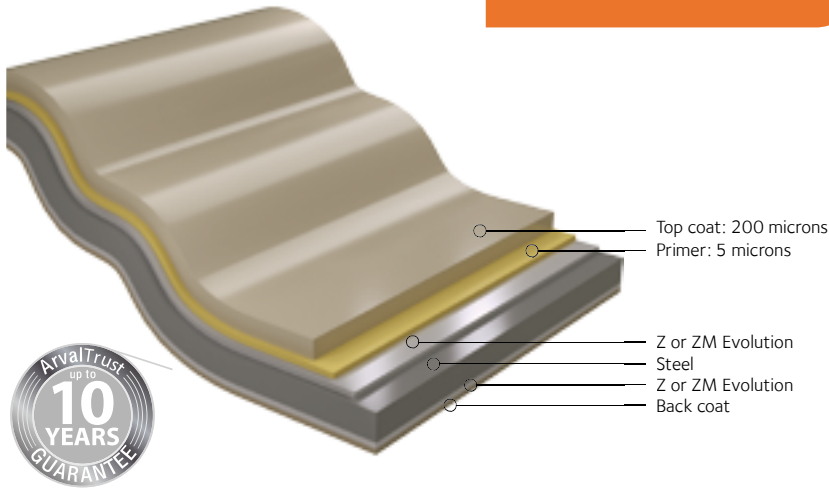
### Coating properties

Paint hardness		Pencil hardness		Color Gloss		UV resistance (lab test)	$\Delta E \leq 3$ Gloss retention $\geq 60\%$	
Abrasion resistance		Sand blasting	350 liters	Corrosion		Salt spray test	500 hours	
		TABER	30 mg			Humidity resistance	1500 hours	
Flexibility		Brutal indentation	No peeling	Chemical agents		Acids, bases and solvents	Acids and bases > Very good Nitric acid vapors > Very good Mineral oils > Very good Aliphatic solvents > Good Aromatic solvents > Bad Ketonic solvents > Bad Chlorine solvents > Poor	
		Bending	2t without cracking					Consult us
Thermal resistance		ERICHSEN	Very good	Fire behavior		Euroclass	Single skin	Double skin
							CS-2, d0	F
Thermal resistance		Oven	Maxi: 80°C	Volatil organic compounds			C, according french labelling	

Any Arval trust guarantee must be validated/authorized by ArcelorMittal Construction and the durability will be defined by our specialists after analysis of the environmental questionnaire.



Exceptional resistance in the most aggressive environments



### The resistance

#### Standards in force

##### Metal substrate

NF EN 10346  
CSTB agreement (AC2012697)  
DIBT (Z-30.11-61) or SITAC SC0799-13

##### Organic coating

XP P 34-301 and NF EN 10169

#### Coating description

##### Constitution

Polyvinyl chloride based thermoplastic resin  
phthalate free

Front: 5 µm of primer - 200 µm of top coat  
Back: Back coat class **II** or category **CPI2**

##### Possibilities

Front: embossed or smooth aspect  
Back: 150 µm on request

##### Gloss

Nominal: 30 GU

### Properties and applications

Very good behavior in corrosive and aggressive atmospheres  
Very good flexibility  
Very good resistance to abrasion thanks to high thickness  
Recommended when the ambient inside is severe



Sand  
wind



Industrial



Marine



High  
Humidity

### Coating class

##### Indoor environment

Category **IV b** (XP P 34-301)  
Category **CPI5** (NF EN 10169)

##### Outdoor environment

Category **V** (XP P 34-301)  
Category **RUV3 and RC5** (NF EN 10169)

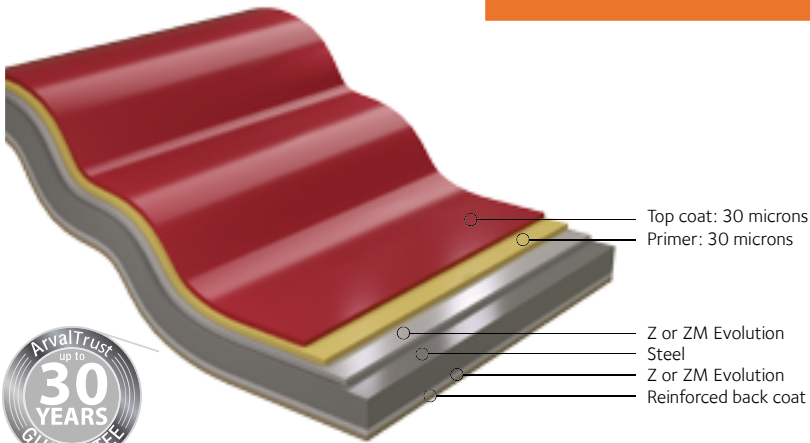
### Coating properties

Abrasion resistance	Sand blasting	500 liters	Corrosion	Salt spray test	500 hours	
	TABER	30 mg		Humidity resistance	1500 hours	
Flexibility	Brutal indentation	No peeling	Chemical agents	Acids, bases and solvents Consult us	Acids and bases > Very good	
	Bending	2t without cracking			Nitric acid vapors > Very good	
	ERICHSEN	Very good			Mineral oils > Very good	
Thermal resistance	Oven	Maxi: 80°C	Volatil organic compounds	Euroclass	Single skin	Double skin
					CS-2, d0	F
					Aliphatic solvents > Good	
					Aromatic solvents > Bad	
					Ketonic solvents > Bad	
					Chlorine solvents > Poor	
					C, according french labelling	

Any Arval trust guarantee must be validated/authorized by ArcelorMittal Construction and the durability will be defined by our specialists after analysis of the environmental questionnaire.



A reference for those which aim at durability



Available with Hairclyn® functionality.

### Properties and applications

Very good chemical agents resistance  
Excellent resistance to corrosion, ultraviolet rays, abrasion and scratches  
Excellent color and appearance stability  
Very high durability



Harsh urban



Industrial



Marine



High humidity

### Design for life

#### Standards in force

**Metal substrate**  
NF EN 10346  
CSTB agreement (AC2012697)  
DIBT (Z-30.11-61) or SITAC SC0799-13

**Organic coating**  
XP P 34-301 and NF EN 10169

#### Coating description

**Composition**  
Composite coating  
Front: 30 µm of primer - 30 µm of top coat  
Back: Back coat class **II** or category **CPI2**

**Possibilities**  
Back: 60 µm on request

**Gloss**  
Grained aspect: gloss 30 GU  
Particularly bright metallized colors

#### Coating class

**Indoor environment**  
Category **IV b** (XP P 34-301)  
Category **CPI4** (NF EN 10169)

**Outdoor environment**  
Category **VI** (XP P 34-301)  
Category **RUV4 and RC5** (NF EN 10169)

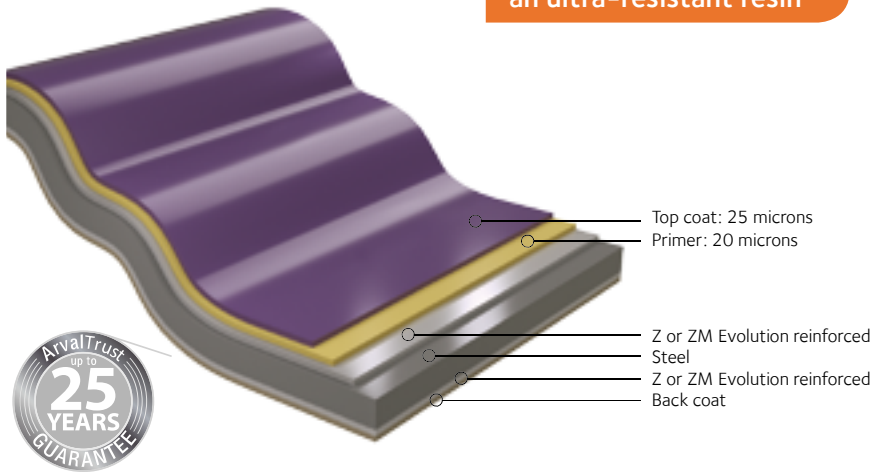
### Coating properties

Paint hardness	Pencil hardness	H-F	Color Gloss	UV resistance (lab test)	ΔE ≤ 2 Gloss retention ≥ 80%
	Sand blasting	120 liters		Corrosion	Salt spray test
Abrasion resistance	TABER	40 mg	Chemical agents		Humidity resistance
	Brutal indentation	No peeling		Flexibility	Acids, bases and solvents
Bending	2t without cracking	Fire behavior	Consult us		
ERICHSEN	Very good		Euroclass		Single skin A1
Thermal resistance	Oven	Maxi: 100°C	Volatil organic compounds	A+	A +, according french labelling

Any Arval trust guarantee must be validated/authorized by ArcelorMittal Construction and the durability will be defined by our specialists after analysis of the environmental questionnaire.



Combination of an ultra-performing metallic coating and an ultra-resistant resin



### A new generation of pre-painted steels

#### Standards in force

**Metal substrate**  
NF EN 10346  
CSTB agreement (AC2012697)  
DIBT (Z-30.11-61) or SITAC SC0799-13

**Organic coating**  
XP P 34-301 et NF EN 10169

#### Coating description

**Composition**  
Composite coating  
Front: 20 µm of primer - 25 µm of top coat  
Back: Back coat class **II** or category **CPI2**

**Possibilities**  
Back: 45 µm on request

**Gloss**  
Grained aspect: reduced gloss 30 GU

#### Coating class

**Indoor environment**  
Category **IV b** (XP P 34-301)  
Category **CPI4** (NF EN 10169)

**Outdoor environment**  
Category **VI** (XP P 34-301)  
Category **RUV4 and RC5** (NF EN 10169)

#### Properties and applications

Very good chemical agents resistance  
Excellent resistance to corrosion, ultraviolet rays, abrasion and scratches  
Excellent color and appearance stability  
Very high durability



Sand wind



Industrial

















Harsh urban



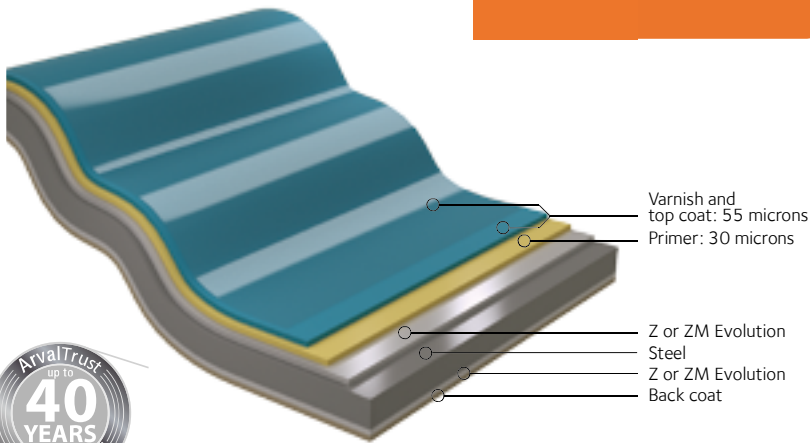
Strong marine sunning

#### Coating properties

Paint hardness	 Pencil hardness	H-F	Color Gloss	 UV resistance (lab test)	$\Delta E \leq 2$ Gloss retention $\geq 80\%$	
Abrasion resistance	 Sand blasting	90 liters	Corrosion	 Salt spray test	750 hours	
	 TABER	40 mg		 Humidity resistance	1500 hours	
Flexibility	 Brutal indentation	No peeling	Chemical agents	 Acids, bases and solvents	Acids and bases > Very good Nitric acid vapors > Very good Mineral oils > Very good Aliphatic solvents > Very good Aromatic solvents > Good Ketonic solvents > Poor Chlorine solvents > Poor	
	 Bending	2t without cracking		Consult us		
Thermal resistance	 ERICHSEN	Very good	Fire behavior	 Euroclass	Single skin	Double skin
	 Oven	Maxi: 100°C			A1	F
Thermal resistance	 Oven	Maxi: 100°C	Volatil organic compounds	 A+	A +, according french labelling	

Any Arval trust guarantee must be validated/authorized by ArcelorMittal Construction and the durability will be defined by our specialists after analysis of the environmental questionnaire.

### Exceptional durability



> Available with Hairclyn® functionality (Sinea® clyn).

### Ultimate protection

#### Standards in force

##### Metal substrate

NF EN 10346  
CSTB agreement (AC2012697)  
DIBT (Z-30.11-61) or SITAC SC0799-13

##### Organic coating

XP P 34-301 and NF EN 10169

#### Coating description

##### Composition

Composite coating  
Front: 85 µm multi-layer polyurethan  
Back: Back coat class **II** or category **CPI2**

##### Possibilities

Back: 85 µm on request  
60 µm on request

##### Gloss

Grained aspect: reduced gloss 30 GU

#### Coating class

##### Indoor environment

Category **V b** (XP P 34-301)  
Category **CPI5** (NF EN 10169)

##### Outdoor environment

Category **VI** (XP P 34-301)  
Category **RUV4 and RC5** (NF EN 10169)

#### Properties and applications

Very good chemical agents resistance  
Excellent resistance to corrosion, ultraviolet rays, abrasion and scratches  
Excellent color and appearance stability  
Very high durability



Sand wind



Industrial



Strong marine sunning



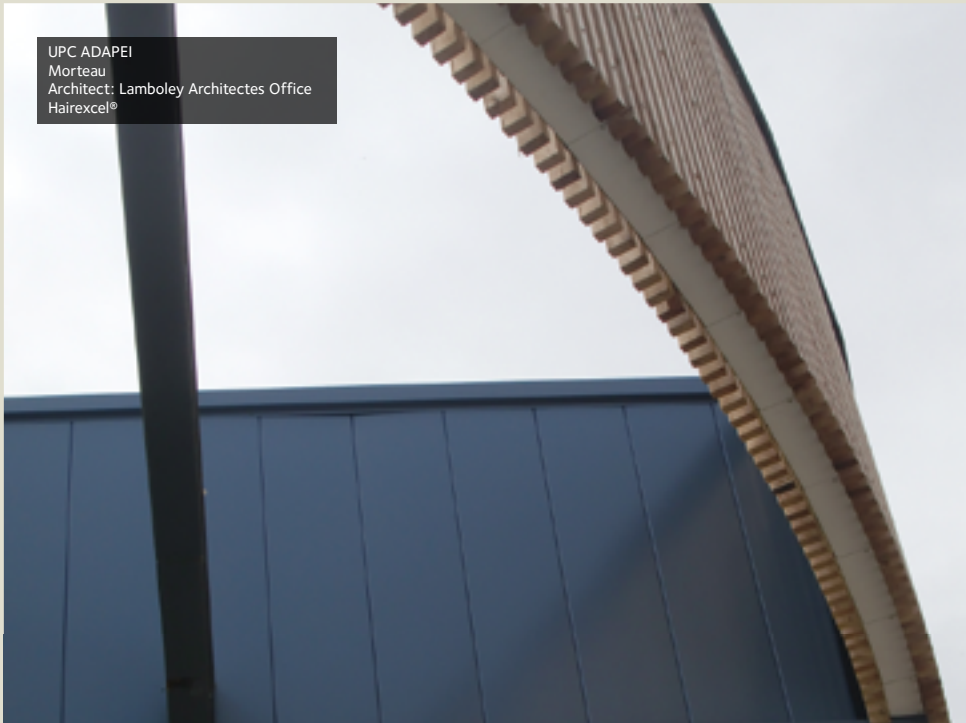
High Humidity

#### Coating properties

Paint hardness	Pencil hardness	H-F	Color Gloss	UV resistance (lab test)	ΔE ≤ 2 Gloss retention ≥ 80%	
Abrasion resistance	Sand blasting	240 liters	Corrosion	Salt spray test	1000 hours	
	TABER	40 mg		Humidity resistance	1500 hours	
Flexibility	Brutal indentation	No peeling	Chemical agents	Acids, bases and solvents	Acids and bases > Very good	
	Bending	1,5t without cracking			Nitric acid vapors > Very good	
Fire behavior	ERICHSEN	Excellent	Euroclass	Euroclass	Mineral oils > Very good	
					Aliphatic solvents > Very good	
Thermal resistance	Oven	Maxi: 100°C	Volatil organic compounds	A+	Consult us	
					Single skin	Double skin
					A2, S-1, d0	F
					A +, according french labelling	

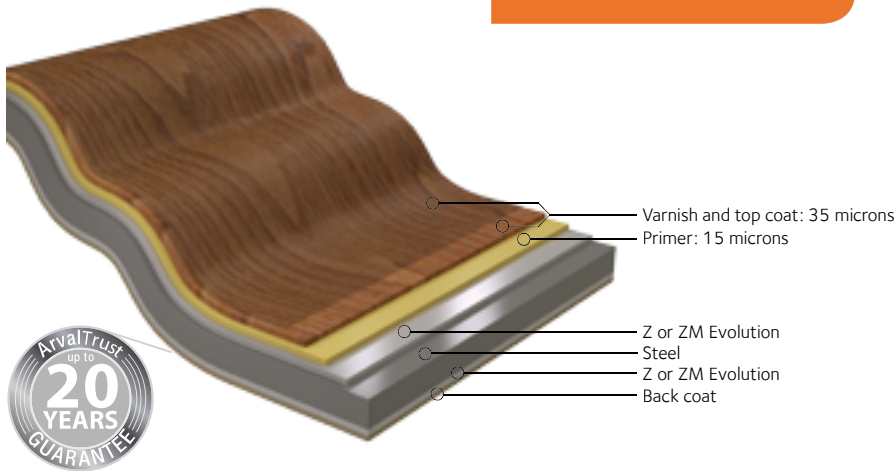
Any Arval trust guarantee must be validated/authorized by ArcelorMittal Construction and the durability will be defined by our specialists after analysis of the environmental questionnaire.

# Project examples





### Matter effects for creative facades



### Cosy & Textured effects

#### Standards in force

**Metal substrate**  
NF EN 10346  
CSTB agreement (AC2012697)  
DIBT (Z-30.11-61) or SITAC SCO799-13

**Organic coating**  
XP P 34-301 and NF EN 10169

#### Coating description

**Composition**  
Thermosetting polyester resin  
Front: 15 µm of primer - 35 µm of top coat and transparent varnish  
Back: Back coat class **II** or category **CPI2**

**Gloss**  
Nominal: mat

#### Properties and applications

Very good resistance to corrosion  
Good color and appearance stability  
Good outdoor durability  
Good forming ability



Urban



Industrial



Marine



Strong sunning

#### Coating class

**Indoor environment**  
Category **III a** (XP P 34-301)  
Category **CPI4** (NF EN 10169)

**Outdoor environment**  
Category **VI** (XP P 34-301)  
Category **RUV4 and RC4** (NF EN 10169)

#### Coating properties

Paint hardness	Pencil hardness	F-HB	Color Gloss	UV resistance (lab test)	ΔE ≤ 2 Gloss retention ≥ 80%	
	Sand blasting	40 liters		Corrosion	Salt spray test	500 hours
Abrasion resistance	TABER	60 mg	Chemical agents		Humidity resistance	1500 hours
	Brutal indentation	No peeling		Consult us	Acids, bases and solvents	Acids and bases > Good Mineral oils > Very good Aliphatic solvents > Very good Aromatic solvents > Good Ketonic solvents > Poor Chlorine solvents > Poor
Flexibility	Bending	2t without cracking	Fire behavior			Euroclass
	ERICHSEN	Very good		A1	F	
Thermal resistance	Oven	Maxi: 90°C	Volatil organic compounds	Green building	A, according french labelling	

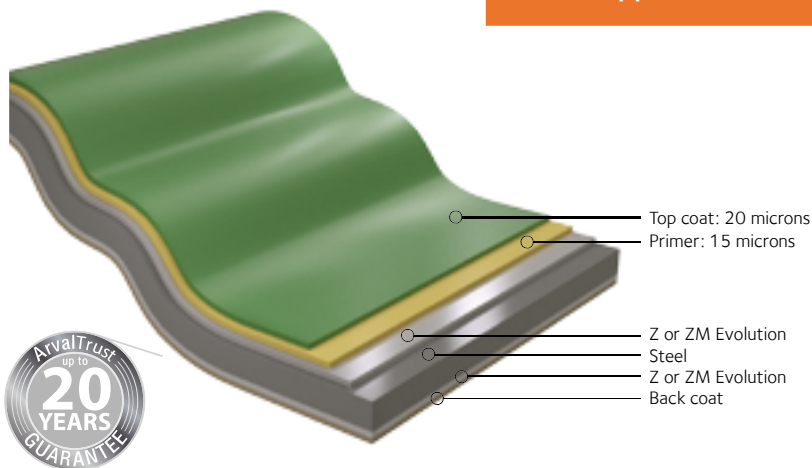
Any Arval trust guarantee must be validated/authorized by ArcelorMittal Construction and the durability will be defined by our specialists after analysis of the environmental questionnaire. Please order all the materials at the same time in order to avoid shade variations between different lots.



# AUTHENTIC

## Texture

Aesthetic values of the metallic aspects such as zinc, copper...



### Soft gloss

#### Standards in force

**Metal substrate**  
NF EN 10346  
CSTB agreement (AC2012697)  
DIBT (Z-30.11-61) or SITAC SC0799-13

**Organic coating**  
XP P 34-301 and NF EN 10169

#### Type of coating

**Composition**  
Thermosetting polyester resin  
Front: 15 µm of primer - 20 µm of top coat  
Back: Back coat class **II** or category **CPI2**

**Possibilities**  
Back: 35 µm on request

**Gloss**  
Nominal: 15 GU / Semi-mat

### Properties and applications

Very good resistance to corrosion  
Good color and appearance stability  
Good outdoor durability  
Good forming ability



Urban



Industrial



Marine



Strong sunning

### Coating class

**Indoor environment**  
Category **III a** (XP P 34-301)  
Category **CPI4** (NF EN 10169)

**Outdoor environment**  
Category **VI** (XP P 34-301)  
Category **RUW4 and RC4** (NF EN 10169)

### Coating properties

Abrasion resistance	Sand blasting	40 liters	Corrosion	Salt spray test	500 hours	
	TABER	60 mg		Humidity resistance	1500 hours	
Flexibility	Brutal indentation	No peeling	Chemical agents	Acids, bases and solvents Consult us	Acids and bases > Good	
	Bending	2t without cracking			Mineral oils > Very good	
	ERICHSEN	Very good			Aliphatic solvents > Very good	
Thermal resistance	Oven	Maxi: 90°C	Volatil organic compounds	Euroclass	Single skin	Double skin
					A1	F
					Aromatic solvents > Good Ketonic solvents > Poor Chlorine solvents > Poor	
Paint hardness	Pencil hardness	F - HB	Color Gloss	UV resistance (lab test)	ΔE ≤ 3 Gloss retention ≥ 80%	
Thermal resistance	Oven	Maxi: 90°C	Volatil organic compounds	A+	A, according french labelling	

Any Arval trust guarantee must be validated/authorized by ArcelorMittal Construction and the durability will be defined by our specialists after analysis of the environmental questionnaire.

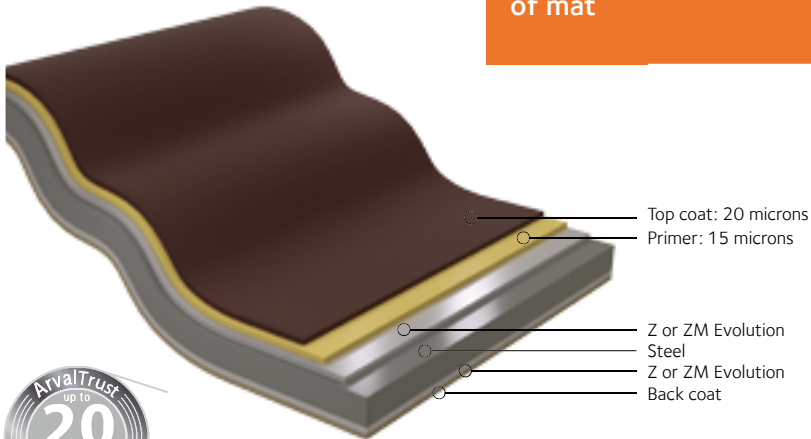


# NATUREL



## Texture

To explore the beauty of mat



### Cosy & Textured effects

#### Standards in force

**Metal substrate**  
NF EN 10346  
CSTB agreement (AC2012697)  
DIBT (Z-30.11-61) or SITAC SCO799-13

**Organic coating**  
XP P 34-301 and NF EN 10169

#### Coating description

**Composition**  
Thermosetting polyester resin  
Front: 15 µm of primer - 20 µm of top coat  
Back: Back coat class **II** or category **CPI2**

**Possibilities**  
Back: 35 µm on request

**Gloss**  
Without light reflection

#### Properties and applications

Very good resistance to corrosion  
Good color and appearance stability  
Good outdoor durability  
Good forming ability



#### Coating class

**Indoor environment**  
Category **III a** (XP P 34-301)  
Category **CPI4** (NF EN 10169)

**Outdoor environment**  
Category **VI** (XP P 34-301)  
Category **RUV4 and RC4** (NF EN 10169)

#### Coating properties

Paint hardness	Pencil hardness	F-HB	Color Gloss	UV resistance (lab test)	ΔE ≤ 3 Gloss retention ≥ 80%	
	Sand blasting	40 liters		Salt spray test		500 hours
Abrasion resistance	TABER	60 mg	Corrosion	Humidity resistance	1500 hours	
	Brutal indentation	No peeling		Chemical agents	Acids, bases and solvents	Acids and bases > Good Mineral oils > Very good Aliphatic solvents > Very good Aromatic solvents > Good Ketonic solvents > Poor Chlorine solvents > Poor
Flexibility	Bending	2t without cracking	Fire behavior		Euroclass	Single skin
	ERICHSEN	Very good		A1		F
Thermal resistance	Oven	Maxi: 90°C	Volatil organic compounds		A, according french labelling	

Any Arval trust guarantee must be validated/authorized by ArcelorMittal Construction and the durability will be defined by our specialists after analysis of the environmental questionnaire.



# Project examples

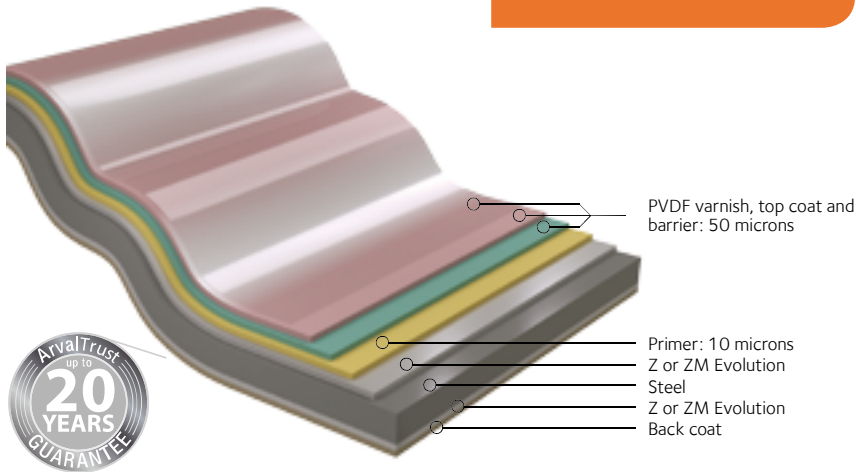


**FIRE STATION**  
Almer - The Netherlands  
Architect: GAJ Architect  
Cassettes Caiman - Edyxo® - Vulcano



**HEAD OFFICE KERMARREC**  
Architect: Treguer architectes  
Coques MD Inox Touch Gloss  
and Naturel Blackberry

A new range of colors  
for a game with the light



Available with  
Flontec® functionality.

### Properties and applications

Excellent anti-staining properties  
Excellent resistance to chemical agents, ultraviolet rays, corrosion, abrasion and erosion  
Excellent color and appearance stability  
Very good flexibility



Harsh urban



Industrial



Sand wind



Strong marine sunning

### Coating properties

Paint hardness	Pencil hardness	F-HB	Color Gloss	UV resistance (lab test)	$\Delta E \leq 2$ Gloss retention $\geq 80\%$	
	Sand blasting	120 liters		Corrosion	Salt spray test	750 hours
Abrasion resistance	TABER	25 mg	Humidity resistance		1500 hours	
	Flexibility	Brutal indentation	No peeling	Chemical agents	Acids, bases and solvents Consult us	Acids and bases > Very good
Bending		2t without cracking	Nitric acid vapors > Very good			
ERICHSEN		Very good	Mineral oils > Very good			
Thermal resistance	Oven	Maxi: 100°C	Volatil organic compounds	Euroclass	Single skin	Double skin
					Measurement in progress	
				A+	A+, according french labelling	

### Pearly shine

#### Standards in force

##### Metal substrate

NF EN 10346  
CSTB agreement (AC2012697)  
DIBT (Z-30.11-61) or SITAC SCO799-13

##### Organic coating

XP P 34-301 and NF EN 10169

#### Coating description

##### Constitution

Thermoplastic fluoride resin (70%)  
Front: 10  $\mu\text{m}$  of primer - 50  $\mu\text{m}$  of PVDF top coat and varnish  
Back: Back coat class **II** or category **CPI2**

##### Possibilities

Back: 60  $\mu\text{m}$  on request

##### Gloss

Nominal: 35 GU

#### Coating class

##### Indoor environment

Category **Vc** (XP P 34-301)  
Category **CPI5** (NF EN 10169)

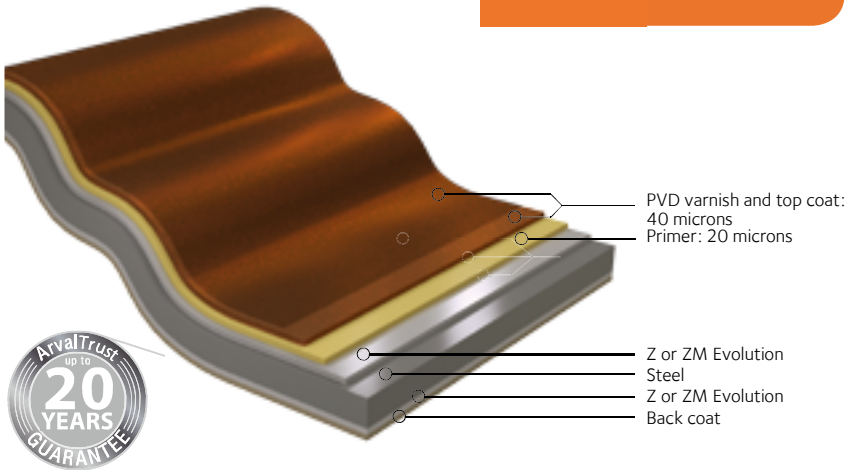
##### Outdoor environment

Category **VI** (XP P 34-301)  
Category **RUV4 and RC5** (NF EN 10169)

# INTENSE

Prestige

Exceptional beauty



> Available with Flontec® functionality.

## Intensity of diamond

### Standards in force

**Metal substrate**  
NF EN 10346  
CSTB agreement (AC2012697)  
DIBT (Z-30.11-61) or SITAC SC0799-13

**Organic coating**  
XP P 34-301 and NF EN 10169

### Coating description

**Constitution**  
Polyvinylidene fluoride resin (70%)  
Front: 20 µm of primer - 40 µm of PVDF top coat and varnish  
Back: Back coat class **II** or category **CPI2**

**Possibilities**  
Back: 60 µm on request

**Gloss**  
Nominal: 30 GU

### Coating class

**Indoor environment**  
Category **V c** (XP P 34-301)  
Category **CPI5** (NF EN 10169)

**Outdoor environment**  
Category **VI** (XP P 34-301)  
Category **RUW4 and RC5** (NF EN 10169)

## Properties and applications

Especially designed for metallized colors  
Excellent resistance to chemical agents, to corrosion, to ultraviolet rays, to abrasion and erosion  
Excellent color and appearance stability  
Very good flexibility and anti-staining properties



Harsh urban



Industrial



Sand wind



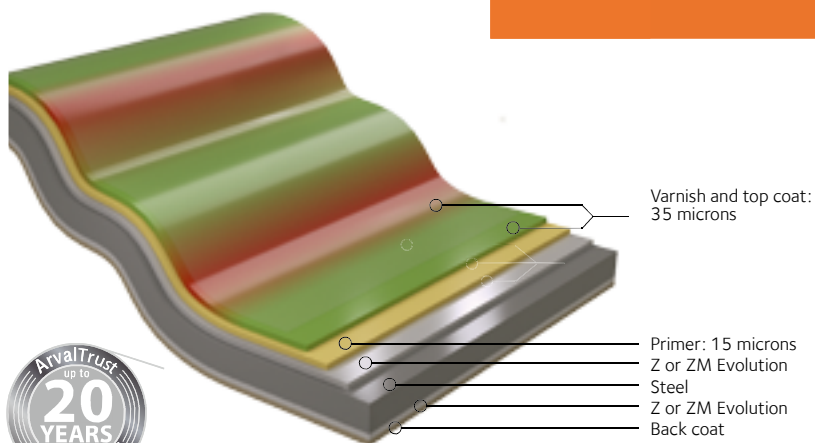
Strong marine sunning

## Coating properties

Paint hardness	Pencil hardness	F-HB	Color Gloss	UV resistance (lab test)	$\Delta E \leq 3$ Gloss retention $\geq 80\%$	
	Sand blasting	120 liters		Salt spray test	750 hours	
Abrasion resistance	TABER	25 mg	Corrosion	Humidity resistance	1500 hours	
	Brutal indentation	No peeling		Chemical agents	Acids, bases and solvents	Acids and bases > Very good Nitric acid vapors > Very good Mineral oils > Very good Detergents > Very good Aliphatic solvents > Very good Aromatic solvents > Very good Ketonic solvents > Very good Chlorine solvents > Very good
Flexibility	Bending	2t without cracking	Fire behavior		Euroclass	Single skin
	ERICHSEN	Very good		Measurement in progress		
Thermal resistance	Oven	Maxi: 100°C	Volatil organic compounds	A+	A+, according french labelling	

Any Arval trust guarantee must be validated/authorized by ArcelorMittal Construction and the durability will be defined by our specialists after analysis of the environmental questionnaire.

With Irysa®, your eye creates the color



### Iridescent emotions

#### Standards in force

**Metal substrate**  
 NF EN 10346  
 CSTB agreement (AC2012697)  
 DIBT (Z-30.11-61) or SITAC SCO799-13

**Organic coating**  
 XP P 34-301 and NF EN 10169

#### Coating description

**Constitution**  
 Thermosetting high durability polyester resin  
 Front: 15 µm of primer - 35 µm of top coat and varnish  
 Back: Back coat class **II** or category **CPI2**

**Possibilities**  
 Back: HAIRULTRA®, HAIREXCEL® or IRYSA® on request

**Gloss**  
 Nominal: 30 GU

#### Properties and applications

Excellent corrosion and ultraviolet rays resistance  
 Excellent color and appearance stability  
 Reinforced anti-staining properties thanks to its varnish protective coat



Harsh urban



Industrial



Sand wind



Strong sunning

#### Coating class

**Indoor environment**  
 Category **III a** (XP P 34-301)  
 Category **CPI4** (NF EN 10169)

**Outdoor environment**  
 Category **VI** (XP P 34-301)  
 Category **RUV4 and RC4** (NF EN 10169)

#### Coating properties

Abrasion resistance	Sand blasting	60 liters	Corrosion	Salt spray test	500 hours
	TABER	60 mg		Humidity resistance	1500 hours
Flexibility	Brutal indentation	No peeling	Chemical agents	Acids, bases and solvents	Acids and bases > Good Mineral oils > Very good Aliphatic solvents > Very good Aromatic solvents > Good Ketonic solvents > Poor Chlorine solvents > Poor
	Bending	2t without cracking		Consult us	
Thermal resistance	ERICHSEN	Very good	Fire behavior	Euroclass	Single skin   Double skin
	Oven	Maxi: 90°C			Measurement in progress
Paint hardness	Pencil hardness	F-HB	Color Gloss	UV resistance (lab test)	$\Delta E \leq 2$ Gloss retention $\geq 80\%$
Volatil organic compounds	Green A				A, according french labelling

Any Arval trust guarantee must be validated/authorized by ArcelorMittal Construction and the durability will be defined by our specialists after analysis of the environmental questionnaire. Please order all the materials at the same time in order to avoid shade variations between different lots.



# Project examples

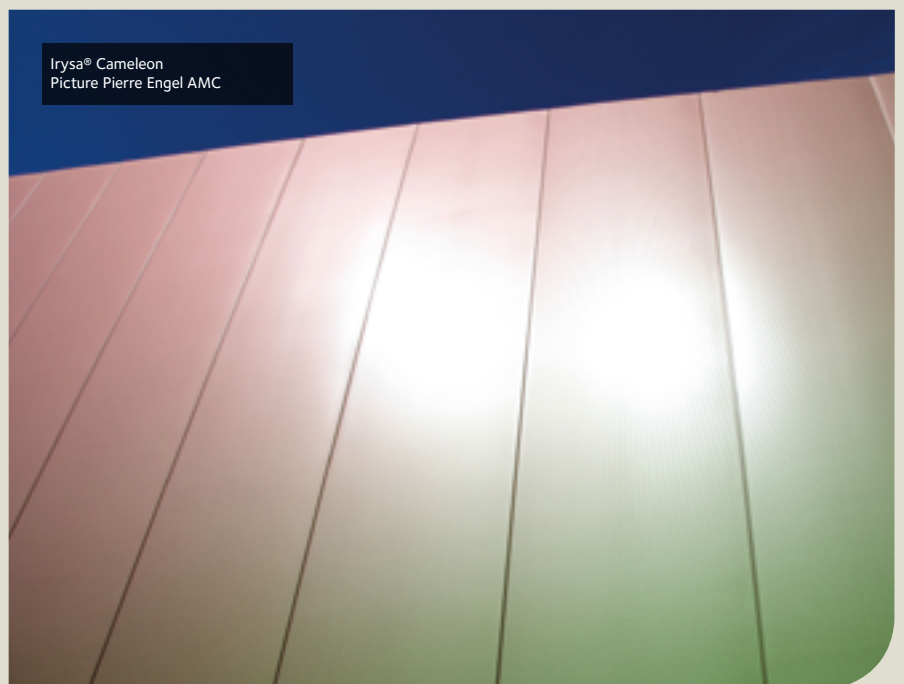
GYMNASIUM BORIS DIAW  
Talence  
Architect: A. Ducasse  
Intense - Copper



HOSPITAL GEORGES PIANTA  
Le Poinçonnet (36)  
Architect: Chabanne Jean  
Pearl - Mica Perla

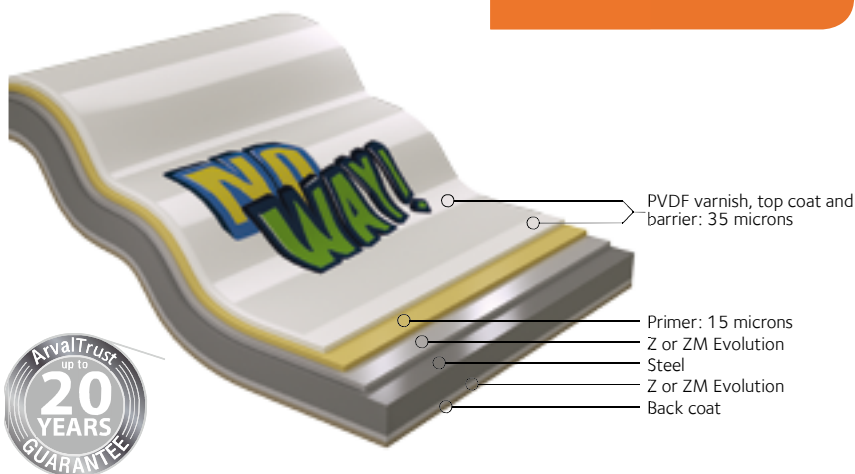


Irysa® Cameleon  
Picture Pierre Engel AMC





An easy-cleaning effect without solvent



### Properties and applications

Excellent corrosion and ultraviolet rays resistance  
 Excellent anti-staining properties  
 Recommended for urban environments and facades with a high-risk of defacement

### Anti-graffiti

#### Standards in force

**Metal substrate**  
 NF EN 10346  
 CSTB agreement (AC2012697)  
 DIBT (Z-30.11-61) or SITAC SC0799-13

**Organic coating**  
 XP P 34-301 and NF EN 10169

#### Coating description

**Constitution**  
 Thermoplastic fluoride resin (70%)  
 Front: 15 µm of primer - 35 µm of PVDF top coat and varnish  
 Back: Back coat class **II** or category **CP12**

**Possibilities**  
 Back: HAIRULTRA® or HAIREXCEL® on request

**Gloss**  
 Nominal: 30 GU

#### Coating class

**Indoor environment**  
 Category **IV b** (XP P 34-301)  
 Category **CP15** (NF EN 10169)

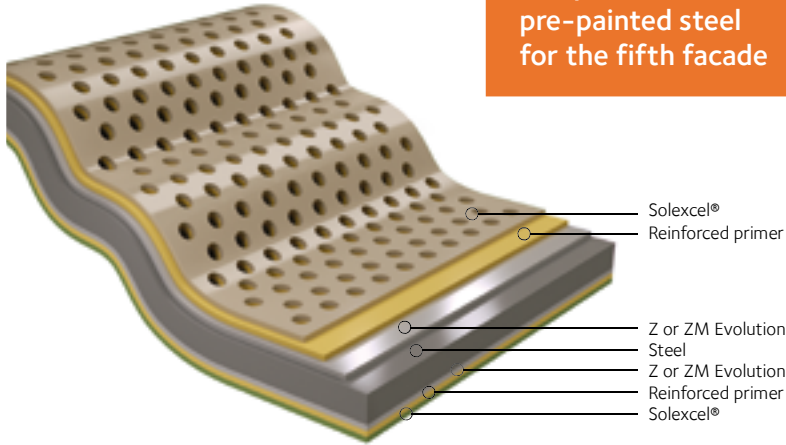
**Outdoor environment**  
 Category **VI** (XP P 34-301)  
 Category **RUV4 and RC5** (NF EN 10169)

### Coating properties

Paint hardness	Pencil hardness	HB-H	Color Gloss	UV resistance (lab test)	ΔE ≤ 2 Gloss retention ≥ 80%
	Sand blasting	100 liters		Corrosion	Salt spray test
Abrasion resistance	TABER	15 mg	Humidity resistance		1500 hours
	Flexibility	Brutal indentation	No peeling	Chemical agents	Graffiti should be removed as quickly as possible (within 72 h). It is recommended to wash the concerned facade with cold water using a high pressure washer. The use of plastic scraper or a non abrasive sponge is possible. For small damaged areas, alcohol for housekeeping can be used as remover. If the adhesion is too strong, special removers can be recommended by our services, contact us. Numerous graffiti removers are available on the market. The use of those chemicals are not allowed on Flontec®. Making touch-ups using painting on a damaged element is not recommended. FLONTEC® anti-graffiti does not protect against acidic paints.
Bending		2t without cracking			
ERICHSEN		Very good			
Thermal resistance	Oven	Maxi: 100°C	Fire behavior	Euroclass	Single skin
					Double skin
					Measurement in progress

Any Arval trust guarantee must be validated/authorized by ArcelorMittal Construction and the durability will be defined by our specialists after analysis of the environmental questionnaire.

### The perforated pre-painted steel for the fifth facade



### For sun-screens

#### Standards in force

**Metal substrate**  
 NF EN 10346  
 CSTB agreement (AC2012697)  
 DIBT (Z-30.11-61) or SITAC SC0799-13

**Organic coating**  
 XP P 34-301 and NF EN 10169

#### Coating description

**Constitution**  
 Composite coating  
 Top coat: Solexcel® on reinforced primer  
 Back coat: Solexcel® on reinforced primer

**Gloss**  
 Grained aspect, smooth gloss

We recommend the perforations R10T14 and R6T10, especially adapted for sun-screens.

### Properties and recommendations

Excellent resistance to ultraviolet, abrasion, scratches  
 Excellent stability of color and aspect



Zinc coating	Rural non polluted	Urban and industrial		Marine				Special	
		Normal	Severe*	20 to 10 km	10 to 3 km	3 to 1 km*	Mixed*	High U.V	Special
Solexcel® 60/60	A	A	C	A	B	C	C	A	C

**A** : the product is suitable

**B** : as per survey

**C** : the product is not suitable

\* Steel thickness limited to 0,75 mm for the profile and 1mm for the siding. For others thicknesses, please consult us.

### Coating properties

Abrasion resistance	Pencil hardness	H-2H	Color Gloss	UV resistance (lab test)	$\Delta E \leq 2$ Gloss retention $\geq 80\%$	
	Sand blasting	120 liters		Salt spray test	750 hours	
Flexibility	TABER	40 mg	Chemical agents	Humidity resistance	1500 hours	
	Brutal indentation	No peeling		Acids, bases and solvents	Acids and bases > Very good Nitric acid vapors > Very good Mineral oils > Very good Aliphatic solvents > Very good Aromatic solvents > Good Ketonic solvents > Poor Chlorine solvents > Poor	
	Bending	2t without cracking		Consult us		
Thermal resistance	ERICHSEN	Very good	Fire behavior	Euroclass	Single skin	Double skin
	Oven	Maxi: 100°C			A1	F
			Volatil organic compounds	A+	A+, according french labelling	



# MURALYS

Technicality



To combine aestheticism and steel?  
With Muralys everything becomes possible

*From dream to reality*

### Standards in force

The technology Muralys meets into force the most demanding standards in the sector of the building:

- > Adhesion according ISO 2409
- > Gloss according ISO 2813
- > Indentation according ASTM D 2794
- > Resistance to strong humide ambient containing EN ISO3231
- > Guarantee anti-graffiti : solution homologated RATP (french railway)

### Muralys Créativ

True technological revolution and aesthetics in the world of architecture, the process of impression on Muralys opens the doors of your creativity.

Resulting from a technology particularly innovating: the Molecular Digital Transfer, the Muralys process allows to reproduce any image chosen by the architect or the owner on a product Arval by ArcelorMittal. All the ideas are possible, even most extravagant because the resolution of impression is stunning.

### To create a single universe



Photo

Letters

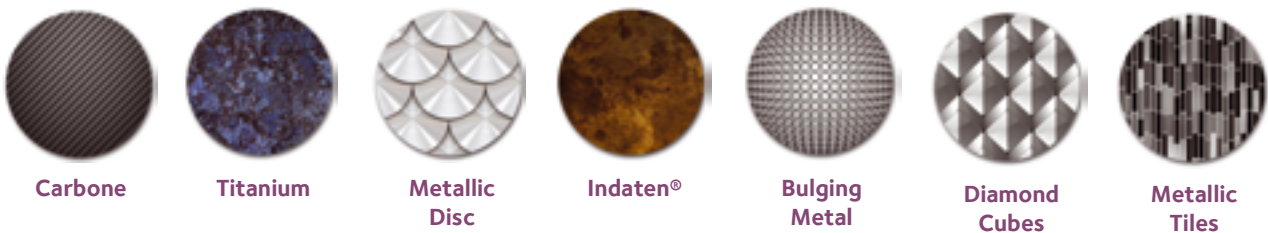
Texture

### Muralys Collection

Available on many products of the range Arval by ArcelorMittal (Hairplan and ST sidings, sandwich panels, MD and BS cassettes, Trapeza profiles and Frequence), Muralys Collection offers to the owner and the architect the advantage of a simple and high definition for the design of the facade.

#### 16 exclusive models for an original facade

*Metallic inspirations, for a touch of modernity.*



Carbone

Titanium

Metallic Disc

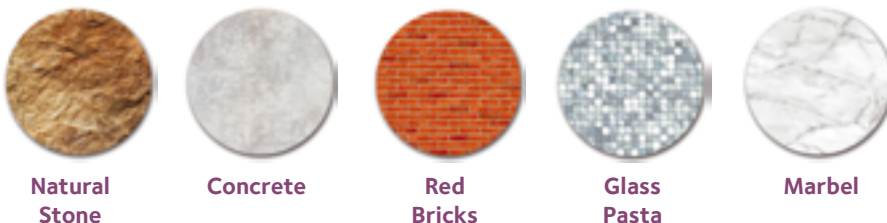
Indaten®

Bulging Metal

Diamond Cubes

Metallic Tiles

*Mineral influence, to create original facades while respecting the local architectural constraints.*



Natural Stone

Concrete

Red Bricks

Glass Pasta

Marbel

*Natural oils, ideal solutions in the green environments, without the constraints related to the maintenance of a vegetalized frontage.*



Kraft Paper

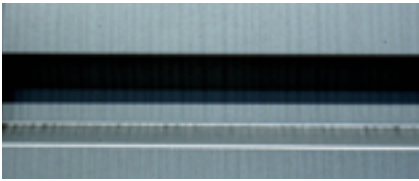
Wood of Bamboo

Old Wood

Ivy

### The first coating easy-to-clean

#### Aspect after the rain

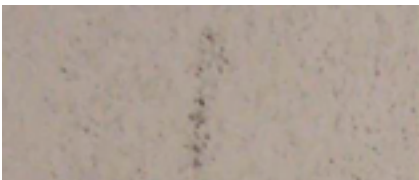


Without Hairclyn®

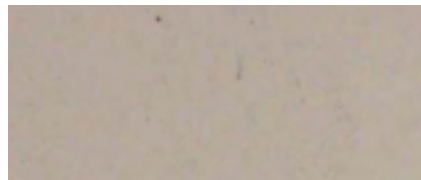


With Hairclyn®

#### Natural staining of the facade



Without Hairclyn®



With Hairclyn®

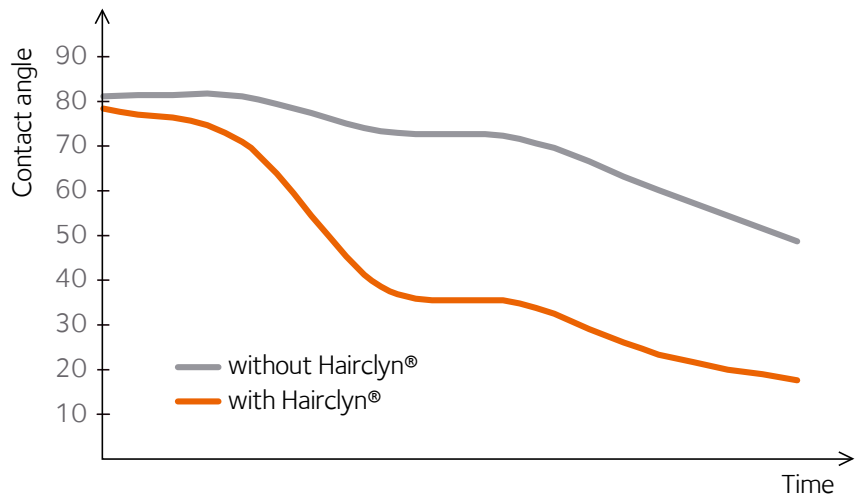
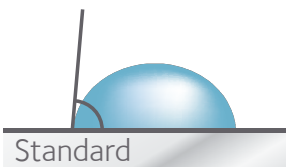
### Cleaning in the rain

#### Coating description

- > Is available in the range of the Colorissime (consult us) and has the same properties (performances and durability)
- > Is available in many colors of the Colorissime Arval by ArcelorMittal (consult us)
- > Is adapted for the whole range of the solutions Arval, for the steel thickness lower or equivalent to 1,2 mm
- > Necessitates a pre-painted steel adapted to the atmospheric conditions
- > Is not compatible with the range Naturel, Irysa®, Pearl and Intense

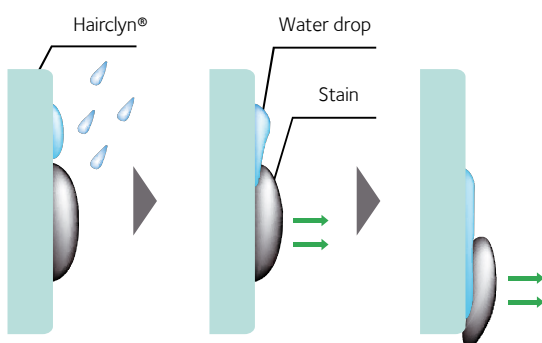
### Behavior

#### Contact angle



**Hairclyn®**, thanks to its absorbent properties, ensures a good distribution of water on all the surface. This property facilitates the cleaning by the rainwater.

Thanks to this process, your facades find their original aspects.



Hairclyn® is the aesthetics of your facade in pre-painted steel solution:

- > a high easy-cleaning effect even by the rain
- > a better resistance against pollution: the stains adhere less, are encrusted less.

Hairclyn® is always more hydrophilic than a standard pre-painted steel. This property ensures an efficient distribution of the water on the surface and facilitates the cleaning against clogging. Thanks to this process, the facades recover their original aspect.

# Selection Guide

## OUTDOOR ENVIRONMENT

Organic coatings (1)	Category according XP P34-301	EN 10169		Rural non polluted	Urban and industrial		Marine					Special	
		UV category	Corrosion category		Normal	Severe	20 to 10 km	10 to 3 km	Coast (3 to 1 km) (2)	1 km to 300 m	Mixte	High U.V.	Special
Hairplus®	IV	RUV3	RC3	A	A	C	A	B	C	C	C	B	C
Hairultra® Edyxo® Irysa® Naturel Authentic	VI	RUV4	RC4	A	A	B	A	A	A	B	B	A	B
Hairflon® 25	IV	RUV4	RC3	A	A	C	A	B	C	C	C	B	C
Hairflon® 35	VI	RUV4	RC4	A	A	B	A	A	A	C	B	A	B
Keyron® 200	V	RUV3	RC5	A	A	B	A	A	A	B	B	B	B
Hairexcel® Flontec® Intense Pearl Sinea®	VI	RUV4	RC5	A	A	B	A	A	A	B	B	A	B
R'Unik	VI	RUV4	RC5	A	A	B	A	A	A	B	B	A	B
Hairclyn®	Coating properties without Hairclyn®												
Muralys	Coating properties without Muralys												

## INDOOR ENVIRONMENT

Organic coatings (1)	Category according XP P34-301	EN 10169	Non aggressive			Weakly aggressive	Aggressive	Very aggressive
		Humidity category	Low humidity	Medium humidity	High humidity	High humidity	Very high humidity	Very high humidity
Intérieur	II	CPI2	A	B	C	C	C	C
Hairultra® Edyxo® Irysa® Naturel Authentic	IIIa	CPI4	A	A	A	B	C	C
Hairplus® Hairflon® 25	IIIa	CPI3	A	A	B	C	C	C
R'Unik	IVb	CP14	A	A	A	A	B	C
Hairflon® 35 Hairexcel® Keyron® 150	IVb	CPI4	A	A	A	A	B	C
Keyron® 200	IVb	CPI5	A	A	A	A	B	C
Intense Pearl Sinea®	Vc	CPI5	A	A	A	A	B	C

**A: the product is suitable**

**B: as per survey**

**C: the product is not suitable**

(1) Unless otherwise specified when the order is placed, the underside is systematically coated with a standard coating of category II or CPI2.

(2) Sea coast from 3 to 1 km : direct aggression from seawater and/or seaspray are not included. Sea coast <300 m: consult us.

### GENERAL CHARACTERISTICS

METAL SUBSTRATE: GALVANISED STEEL according standards P34-310 / NF EN 10346 or ZM Evolution according ETPM from CSTB, Zulassung from DIBT and Technical approval from SITAC.

COATING: according standards XP P 34-301 / NF EN 10169.

GUARANTEES: The "Building Insurance" obliges each party involved in the building construction to take out an insurance covering professional liability. Pursuant to this law, Arval has taken out an insurance policy covering the manufacturer's liability for any material manufactured by the Company in so far as:

- > the products have been installed in accordance with the erecting rules and as per the requirements that figure in the relevant official documents (technical instructions, brochures of technical standards, trade regulations, Arval technical brochures...).
- > the coating chosen is suited to the corresponding type of atmospheric exposure.

On request, a paint durability guarantee can be issued after performing a survey of the environment and application criteria specified in the questionnaire, which is completed by our customers. Whatever the case, the request has to be done before placing the order.



## Precautions for use

### TRANSPORT

During haulage the packs must be stowed in a dry place away from the damp. Should any damage be seen when unloading, reservations must be made to the haulier at once.

### STORAGE

When galvanised or prepainted galvanised steel sheeting is stacked up in a bundle, it is damp sensitive (permanent moisture condensation). Once erected, galvanised steel can be in contact with water.

The products must be sheltered with freely circulating air (a covered warehouse, tarpaulin...). The packages must be inclined from the horizontal to facilitate drying off and be kept off the ground so that they are properly aired, thus avoiding any permanent damage to the plates.

Under no circumstances must the bundles be covered with just a plastic sheet and left outside. In case galvanised or pre-painted galvanised roll-formed elements are made wet by the rain or condensation, they should be immediately propped up and dried separately to avoid any risk of surface oxidation. In this way, any superficial damage to the coating will be avoided. Furthermore, it is necessary to make sure that any waste or stones are removed as they could damage the under sheets in the pack.

For maritime packaging, it will be necessary:

- > to remove the waterproof packaging material in order to air the bundles as soon as they are delivered on-site or within a month of the delivery date at the latest.
- > to protect the products from bad weather conditions and ultraviolet rays.

### HANDLING

The profiles have not to be bumped or scratched until the bare steel, because they would be unsuitable to be installed on the building. Take appropriate handling precautions to prevent any deterioration of the products by slings or any other lifting device.

### INSTALLATION

The assembly should be correctly performed according to erecting rules (technical standards, trade regulations, standards, technical reports, the manufacturer's instructions...).

It is important that the erection company should receive delivery of the structural frame first, mainly to prevent water stagnating on the roof and any deformation of the cladding, which would be aesthetically displeasing and detrimental to the integrity of the pre-painted coating.

Contractors must take appropriate precautions in order to avoid scratches or marks. This kind of damage would lead to incipient corrosion over time and would be aesthetically displeasing. Some of the Arval products may be delivered with a protective film covering: it is important to remove this protective film as the products are being erected (and at the latest, 3 months after the date of dispatch if the profiles have still not been erected).

#### On-site cutting and machining

- > When cutting elements on-site during assembly, protect the paint coating (with sheeting) in order to avoid any damage and especially hot metal particles getting incrustated.
- > Remove the burr.
- > Apply clear varnish along the cut edges to prevent them from going rusty.

#### Drilling to fix

As the products are being erected, carefully clean off drilling swarf with a nylon brush.

#### Fixing and seam fastening

When fixing and fastening, the installer should stand on the overlapping profile to make sure it interlocks correctly, thus ensuring a perfect overlap.

#### Condensation regulator back coats - Haircodrop

Remove the two strips of adhesive film from the overlapping corrugation before installing the elements. Take care not to scratch the condensation regulator minimising back coat on the roof purlins.

After unpacking of profiles covering by a condensation regulator, it is recommended to avoid to pile up the elements with protection between them. It could deteriorate the painted side. If the package is not completely used, a rigorous covering will have to be carried out.

## Restoration

### MAINTENANCE

The coating of galvanised prepainted (or not) products will afford efficient rust protection providing the film remains undamaged.

Therefore, all paint coatings must be examined during the essential yearly inspection. If deposits of aggressive material are detected (soot, fumarolic gas...), they must be cleaned off with a solution of non-abrasive detergent. Should the paint coating start showing signs of damage, appropriate treatment should be carried out to remedy this.

The tables below give a list of different ways of treating the product, according to the condition of the substrate as well as its location.

Conditions of maintenance of the coated sheets "Kristal®" do not differ from those of hot dip galvanised sheets. It is however to note that if the coating "Kristal®" is locally destroyed, the repair must be carried out afterwards cleaning with a metal brush, with a painting with aluminium powder containing epoxydic resin. The thickness of the film of paint has to be less than 70 microns.

### DESCRIPTION OF REPAIRING PROCESSES

#### Preliminary material investigation

Before commencing any work, it is necessary to carry out a thorough preliminary investigation into the product:

- > the type of organic coating (HAIREXCEL®, INTENSE, PEARL, HAIRFLON®, KEYRON®)
- > check on paint film adhesion when subjected to bad weather conditions.

#### Surface preparation

An important phase is the preparation. The objective of this is to make sure the substrate has a clean surface as this contributes to paint adhesion when performing remedial painting. Main procedures in surface treatment:

- > Degreasing: clean with pump pressure hot water (HP-70°C) using non-abrasive detergent (or clean by hand, but this is less efficient), then rinse with hot water (pump HP-70°C) and dry.
- > Phosphate treatment: chemical cleaning (10% of phosphoric acid).
- > Two effects: the pickling effect, which contributes to the adhesion of the anti-rust primer, and the phosphate effect (formation of a protective layer of phosphate and insoluble iron between the phosphoric acid and the rust on the substrate. Rinse with hot water (pump HP-70°C) and dry.
- > Mechanical pickling: low pressure sand blasting, to

remove any loose particles (rust, paint...) from the galvanised steel. This process removes white rust. It is also possible to:

- > clean rusty parts and rusty edges by chipping, scraping and hand or mechanical brushing.
- > scour (chemically or mechanically) the shiny areas of the galvanised or prepainted sheet.
- > Then remove the dust (compressed air, sweeping, wiping)

#### System of repair

Generally speaking, this system involves applying a primer coat and a top coat.

#### Nota :

to decide what products to use and how to go about it, it is preferable to seek the paint manufacturer's advice, which he will give you according to:

- > the extent of the damage
- > the environment (rural, urban, industrial, marine, aggressive)
- > the type of finish required by the customer: gloss retention, color stability over the years, variation in color compared to initial color.

Paint manufacturers have references of approved applicators of these products.

### VARIATION IN COLOR OVER THE YEARS

The state of the surface and the color of the pre-painted coating will more or less change over the years depending on ageing due to the natural impact of atmospheric factors (bad weather, acid rain, UV radiations, abrasive wind...).

If a new element is used to replace a naturally aged pre-painted roofing or cladding element, there may be a variation in the color.

## Restoration

### REMEDIAL ACTIONS ON GALVANISED OR PRE-PAINTED CLADDING

CONDITION OF SUBSTRATE	REASONS FOR REPAIR	SURFACE PREPARATION	APPLICATION OF ANTI-CORROSIVE TACK COAT	TOP COAT APPLICATION
<b>GALVANISED STEEL</b> new / old	Painting requirement	<p>Degreasing</p> <ul style="list-style-type: none"> <li>If galva is very shiny: etching with an acid solution (chemical treatment)</li> <li>Rinse with HP pump</li> <li>Dry</li> </ul>	Apply 1 coat of anti-corrosive primer using a brush	<ul style="list-style-type: none"> <li>After drying the clean substrate or primer, apply 1 or 2 layers of polyurethane, acrylic top coat using a brush or a spray. Paint will be selected according to:</li> </ul>
<b>PRE-PAINTED STEEL</b> new (less than 1 year old)	<ul style="list-style-type: none"> <li>Color change requirement</li> <li>Ladding installed wrong way round</li> </ul>	Degreasing	Generally speaking, no primer is required if the surface is clean and clear of any soiling	
<b>PRE-PAINTED STEEL</b> no sign of corrosion	Painting requirement			
<b>PRE-PAINTED STEEL</b> with corrosion	<p>Signs of:</p> <ul style="list-style-type: none"> <li>White rust and/or patches of paint peeling off</li> </ul>	Phosphate treatment	Apply a coat of anticorrosive primer using a brush or spray it on	<ul style="list-style-type: none"> <li>Quality of finish requested by the customer (degree of gloss retention, color stability over the years)</li> <li>Degree of environment aggressiveness</li> <li>Specifications of paint supplier</li> </ul>
	<p>Signs of:</p> <ul style="list-style-type: none"> <li>White rust</li> <li>Spots of rust and/or patches of rust</li> <li>Patches of prepainted coating peeling off</li> </ul>	<ul style="list-style-type: none"> <li>Hand or mechanical brushing, chipping, scraping to strip corroded areas</li> <li>Phosphate treatment</li> </ul>	<ul style="list-style-type: none"> <li>If necessary, apply anti-corrosive primer over rusty edges and rusty parts.</li> </ul>	
	<p>Signs of:</p> <ul style="list-style-type: none"> <li>General corrosion</li> <li>Considerable peeling of paint film</li> </ul>	<ul style="list-style-type: none"> <li>Mechanical stripping</li> <li>Use sand sweeping or mechanical brushing over the whole surface</li> <li>General dust removal</li> </ul>	<ul style="list-style-type: none"> <li>Apply a coat of anti-corrosive primer over the whole surface using a brush or a spray gun</li> </ul>	

## Restoration

### REMEDIAL ACTIONS ON GALVANISED OR PRE-PAINTED CLADDING

SPECIAL POINTS	SURFACE PREPARATION	APPLICATION TO SYSTEM
Remedial painting of scratches on new buildings	Clean with a cloth	Apply the appropriate touch-up paint according to the type of pre-painted coating, using a thin brush to restrict the area repainted.
Corrosion protection of sections of cutted edges profiles, flat sheets or flashings	Clean with a cloth	GALVANISED: apply zinc paint with a brush. KRISTAL®: apply aluminum paint with a brush. PRE-PAINTED: apply colorless anti-corrosive varnish or the same color anti-corrosive paint.
Corrosion of the ends of roofing profiles along the overlaps or gutters	Mechanical brushing of corroded areas Remove dust with a cloth or with an HP pump	Mark out the area to be repainted with a gauge or an adhesive strip. Apply an anti-corrosive (40 microns) primer with a brush. Apply a top coat (40 microns) of the same color using a brush or a spray. Overlap between two sheets: spray with « neutralizing anti-rust » paint.
Corrosion protection on the inside of galvanised steel gutters	Clean with an HP pump Brush mechanically the corroded areas Remove dust	Apply bitumen paint with a brush.
Remedial painting of black marks left by profiles rubbing against each other during transit • Galvanised Kristal® • Pre-painted	Clean with a cloth or with an HP pump (70°) according to the extent of the black marks	If there are so many black marks that it is necessary to repaint the whole surface, refer to the previous page.
Corrosion protection of galvanised or pre-painted areas in the immediate vicinity of ue outlets		See the previous page and choose the system according to the degree of corrosion.
Paint for sign-plate, logo... over the existing one		Choose the appropriate paint system according to the type of pre-painted coating (go back to previous page).

Note: Remedial painting: ageing differs according to the pre-painted coating initially used (chalking, color...).

## Maintenance recommendations

Sustainability can only be guaranteed if a careful watch is kept on the buildings and also if they are properly maintained. It is the owner's responsibility to keep watch of the building and maintain it after acceptance of the work. The coating must be inspected every year.

Preventive maintenance should be carried out every TWO YEARS, in accordance with the rules of the trade, brochures of technical standards, technical reports and current standards.

### Keeping watch means above all

- > inspecting elements that make up the shell of the building (particularly the purlins, as water will stagnate on the roof in case of slumping).
- > check the physical damages due to impact or abrasion which can lead to rust and take appropriate remedial action (remedial paint...).
- > preventive maintenance:
  - > removing of moss, vegetation and other kinds of debris...
  - > keeping rainwater pipes in good working order.
  - > cleaning facades and roofs.

For more details, consult appendix C of the NFP 34.205-1 (DTU 40-35) standard.

Normal use means keeping trafficking down to a bare minimum for the purposes of normal maintenance, as described above, as well as other work, such as: chimney-sweeping, installing and maintaining aerials...

Care and appropriate measures must be taken to avoid:

- > crushing flat sections or deforming ribs, especially for plates 0,63 mm thick. A solution could be to have trafficking lanes.
- > damaging the protective coating.

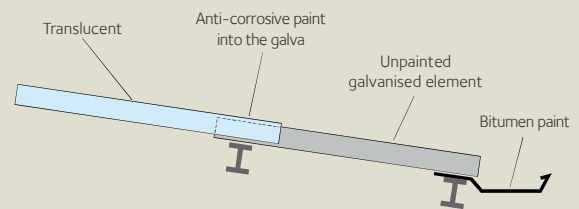
The owner's attention should be drawn to the fact that, when the ambient air becomes more aggressive (for example with new pollution) the suitability of the original coating to its new environment must be reexamined and, if need be, the coating must be adapted to these new conditions.

### SPECIAL ASPECTS

#### Translucent overlaps (polyester and/or PVC ) in the roof

Requisites:

- > A closed cell foam seal, self adhesive on one side, 5 x 15 in size to ensure weather tightness on all the lateral and longitudinal overlaps.
- > Support tools under each corrugation overlap.



Nota :

unpainted galvanised elements:  
we advise you to protect unpainted galvanised roofing elements, which are situated underneath, by applying anti-corrosive paint along the overlaps.

#### Roof Oversail - Overlaps

In case of incipient corrosion along the edges of drip moulds and/or overlaps and around any roofing cutted parts, repaint these parts with anti-corrosive paint.

#### Roof outlets

To curb the spreading of rust in roof areas situated very near roof outlets, it is advised to repaint these areas with a suitable anti-corrosive paint as a preventive measure, or at least keep a closer watch on these areas and repaint them as soon as you see rust beginning to form.

#### Surfaces not subject to natural washing

Where surfaces are not subject to a natural rainwater washing process, yearly cleaning will be required, i.e.:

- > one wash down per year.
- > systematic and immediate treatment of any parts showing signs of incipient corrosion, for any reason whatsoever.



## Precautions for use

### TRANSPORT

During haulage the packs must be stowed in a dry place away from the damp. Should any damage be seen when unloading, reservations must be made to the haulier at once.

### STORAGE

The products must be sheltered with free air circulation (a covered warehouse, tarpaulin...). The packages must be inclined from the horizontal to facilitate drying off and be kept off the ground so that they are properly aired, thus avoiding any permanent damage to the plates.

Furthermore, it is necessary to make sure that any waste or stones are removed as they could damage the under sheets of the pack.

For maritime packaging, it will be necessary:

- > to remove the waterproof packaging material in order to air the bundles as soon as they are delivered on-site or within a month of the despatch date at the latest.
- > to protect the products from bad weather conditions.

### HANDLING

The profiles must not be deformed by bumping or scratching as this would make them unfit for proper use during site work. Take appropriate handling precautions to prevent any deterioration of the products caused by slings or any other lifting device.

### INSTALLATION

The assembly should be correctly performed according to erecting rules (trade regulations, standards, technical reports, manufacturer's instructions...).

It is important that the erection company should receive delivery of the structural frame first, mainly to prevent water stagnating on the roof and any deformation of the cladding, which would be aesthetically displeasing.

Contractors must take appropriate precautions to avoid scratches or marks.

Some of our products may be delivered with a protective film covering: it is important to remove this protective film as the products are being erected (and at the latest, 3 months after the date of dispatch if the profiles have still not been erected).

### On-site cutting and machining

- > When cutting elements on-site during assembly, protect the product (with sheeting) in order to avoid any soiling of the surface. Do not grind or shear any metal elements near the product.
- > Remove the burr.
- > It is essential to use tools adapted to stainless steel.

### Drilling to fix

As the products are being erected, carefully clean off drilling swarf with a nylon brush.

### Fixing and seam fastening

When fixing and fastening, the installer should stand on the overlapping profile to make sure it interlocks correctly, thus ensuring a perfect overlap.



BLANGY WHITE-WATER SITE  
Architect: Avant Propos  
Cairman - Inox Touch Gloss

## Maintenance recommendations

Sustainability of stainless steel can only be guaranteed if a careful watch is kept on the building and also if it is properly maintained. It is the owner's responsibility to keep watch on the building and maintain it after acceptance of the work. The product must be inspected every year.

Preventive maintenance should be carried out every TWO YEARS, in accordance with the rules of the trade, technical reports and current standards.

### Keeping watch means above all

- > Inspecting elements that make up the shell of the building (particularly the purlins, as water could stagnate on the roof in case of slumping) to protect the products from bad weather conditions.
- > Preventive maintenance:
  - > removal of moss, vegetation and other kinds of debris...
  - > keeping rainwater pipes in good working order
  - > cleaning facades and roofs.

Normal use means keeping trafficking down to a bare minimum, for the purposes of normal maintenance, as described above, as well as other work, such as: chimney-sweeping, installing and maintaining aerials...

Care and appropriate measures must be taken to avoid:

- > Puncturing flat areas or deforming ribs, especially plates, which are less than or equal to 0,63 mm thick. A solution could be to have trafficking lanes marked out.
- > Damaging the tin layer of the FTE quality.

Should there be technical equipment installed on the roof requiring frequent inspection (air conditioning for example) appropriate arrangements should be made, such as marking out trafficking lanes.

### Good cleaning practice for stainless steel

Tin-coated stainless steel does not require cleaning because the layer of tin gives the finish that uniform stainless look.

#### > Products

Degreasing agents for windows, bleach-free detergent (washing powder, detergent, liquid soap) and washing soda are regarded as safe for use on stainless steel. It is preferable to use commercial household products (and not just active substances) as they tend to contain corrosion inhibitors. Make sure you comply with the best possible operating parameters. In order to disinfect stainless steel, all you need do is use products 10 to 100 times weaker in concentration than you would for other material. Do not use products which contain chlorine or bleach. Only very weak bleach and chlorine derivate solutions can be used and they should only be left on the steel for a short period of time. Do not use hydrochloric acid.

#### > Rinsing and drying

Thoroughly rinse: systematically rinse with soft water once all the cleaning product has been applied. Use a squeegee to wipe the surface over or, failing this, a soft clean cloth.

#### > Operating procedure and tools

Use sponges or, failing this, soft nylon brushes (except on Touch Gloss surface). Use stainless steel wire brushes or scotch-brite brushes to remove deposits that tend to stick: other wire brushes could leave residues and cause incipient rust. The brush should be moved in the same direction as the polish, and, whatever the circumstances, always in the same direction. Use a high pressure cleaner, with or without a detergent product, and / or hot water. As a general rule, use clean instruments and tools. Put protection round the ends of ladders, which are propped against the steel.



SORTING OFFICE  
Perpignan  
Architects: M. Arsène - Henry Jr  
Caïman - Inox

# Environmental Questionnaire

TO BE RETURNED BY FAX : +33 329 798 735

- OBJECTIVE**  Prior to a request for a guarantee  
 Choice of appropriate coating

## IDENTIFICATION

### IDENTIFICATION OF APPLICANT

Corporate name .....

Business activity .....

Adress .....

Street .....

.....

Post code ..... Town .....

Contact :  Mrs  Miss  Mr .....

Fonction .....

Telephone ..... Fax .....

E-mail .....

### IDENTIFICATION OF PROJECT

Intended use of building .....

.....

Project (Corporate Name) .....

.....

Location .....

Street .....

Post code ..... Town .....

Contact :  Mrs  Miss  Mr .....

Fonction .....

Telephone ..... Fax .....

E-mail .....

# Environmental Questionnaire

## Environmental conditions

### ATMOSPHERIC EXPOSURE & INTERIOR ENVIRONMENT

Please fill in the table with the building criteria (tick the box containing the relevant interior and exterior criteria).

Environmental conditions as per Appendix A of standard XP P 34.301.

#### EXTERIOR ATMOSPHERE

Rural non polluted	Urban and industrial		Marine				Special		
	Normal	Severe	20 to 10 Km	10 to 3 Km	Coast 3 to 1 Km (2)	Coast 1 km to 300 m (2)	Mixed	High UV	Special

#### INTERIOR ENVIRONMENT

Rural non polluted	Non aggressive				Aggressive environment
	Low humidity	Medium humidity (1)	High humidity	Very high humidity	

(1) Refer to us for environment with average humidity but high intermittent humidity.

(2) Coastal: under 3 km from the coastline, except direct aggression from seawater and/or from seaspray (seashore) and as per standard XP P 34.301. In an area less than 1 km from the coast = the manufacturer will determine which coating is suitable after examining the environmental questionnaire and the layout plan (to be provided).

### EXTERNAL FACTORS

#### DEGREE OF SUNSHINE

##### Kind of climate

- Temperate
  Tropical
  Mediterranean  
 Subtropical
  Oceanic
  Equatorial  
 Mountain/Altitude ..... m
  .....  
 .....

##### Sand wind

- Yes
  No

#### PERCENTAGE OF RELATIVE HUMIDITY

##### Rainfall rate

- High or very high
  Average
  Low

##### Snowfall

- High
  Average
  Low

# Environmental Questionnaire

## Description of building requested

### ROOFING

FEATURES OF THE SYSTEM	BUILDING SYSTEMS							
	Weatherproofing complex		Single skin		Double skin		Sandwich panels	
	Internal face	External face	Internal face	External face	Internal face	External face	Internal face	External face
Thickness (roll-formed)								
Surface area (m <sup>2</sup> )								
Sound absorption	<input type="checkbox"/> Perforated <input type="checkbox"/> Slotted				<input type="checkbox"/> Perforated <input type="checkbox"/> Slotted		<input type="checkbox"/> Perforated	
Color requested (specify shade)								
Is the roofing curved ?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are there any overlaps ?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are there any penetrations (outlets...) ?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are there any lighting areas ?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Roof overlaps	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Coating requested								

### WALL CLADDING

FEATURES OF THE SYSTEM	BUILDING SYSTEMS						
	Single skin		Double skin		Sandwich panels		Sun-screen (fifth facade)
	Internal face	External face	Internal skin	External skin	Internal facing	External facing	
Thickness (roll-formed)							
Surface area (m <sup>2</sup> )							
Laying direction	<input type="checkbox"/> Horizontal <input type="checkbox"/> Vertical		<input type="checkbox"/> Horizontal <input type="checkbox"/> Vertical	<input type="checkbox"/> Horizontal <input type="checkbox"/> Vertical	<input type="checkbox"/> Horizontal <input type="checkbox"/> Vertical		<input type="checkbox"/> Horizontal <input type="checkbox"/> Vertical
Sound absorption			<input type="checkbox"/> Perforated <input type="checkbox"/> Slotted		<input type="checkbox"/> Perforated		
Color requested (specify shade)							
Is the wall cladding curved ?	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No		Centering at installation
Coating requested							

Definitions: Internal: Side of profile or panel exposed to the inside environment of the building  
External: Side of profile or panel exposed to the outside atmosphere

Comment: Double skin systems, which use trays, are designed for buildings with a low or average humidity rating, except Hairaquatic system.



# Environmental Questionnaire

## Analysis of environment

Please answer the following questions:

### OUTSIDE AGENTS

- Does the building have oil-fired heating ? .....  Yes  No
- Are there chimneys for the discharge of smoke and fumes ? .....  Yes  No
- Are there any smoke generators for oil-fired heating nearby ? .....  Yes  No
- Is the building near :
- > buildings sheltering animals ? .....  Yes  No
  - > factories ? .....  Yes  No
  - Type of production ..... Distance (Km) .....
  - > laboratories ? .....  Yes  No
  - > steam or gas fumes (petrochemicals...) ? .....  Yes  No
  - > dust deposits or areas where dusty products are stored (waste reception centres, incinerators...) .....  Yes  No
  - If the answer be yes, specify the type of activity : .....
  - .....
  - Are the dusty products under dominant winds ? .....  Yes  No

### INSIDE AGENTS

- Specify what the activity will be inside the building .....
- .....
- Are chemical products used or stored ? .....  Yes  No
- Are there steam or gas fumes inside the building ? .....  Yes  No
- Are there any extractor fans, for chimneys, natural or forced ventilation ? .....  Yes  No
- Is there a risk of condensation forming inside the building ? .....  Yes  No
- Is the internal face covered with insulation? (stretched felt, false ceiling...) ? .....  Yes  No
- Is there likely to be any fermentation or animals inside the building ? .....  Yes  No
- Will the metal framework be coated with paint before being installed ? .....  Yes  No
- If so, specify the kind of coating : .....

N.B: Only questionnaires duly filled in and signed by the customer will be taken into consideration.

### FURTHER INFORMATION

- Fire behavior requested .....  Yes  No
- If so : Euroclass .....
- .....

In ..... Date .....

Stamp of customer ..... Name and signature (preceded by "certified true")

A large, rounded rectangular area containing numerous horizontal dotted lines for writing notes.





# ArcelorMittal

## **Austria**

AMC Austria GmbH-Arval  
Lothringenstraße 2  
A-4501 Neuhofen an der Krems  
T: +43 7227 5225  
PFLAUM  
Ganglgutstraße 89  
A-4050 Traun  
T: +43 72 29 64 584

## **Belgium-Belgie**

ArcelorMittal Construction-Arval  
Lammerdries 8  
2440 Geel  
T: + 32 14 56 39 43

## **Croatia-Hrvatska**

ArcelorMittal Construction  
Croatia  
Bani bb  
10000 Zagreb  
T: +385 1 6607 532

## **Czech Republic-Česká Republika**

ArcelorMittal Construction-Arval  
CZ - 110 00 Praha 1  
Biskupský dvůr 7  
T: +420 272 072 019

## **Denmark-Danmark**

ArcelorMittal Construction Denmark  
c/o RC Stål Aps  
Tolbodgade 8  
DK-4700 Næstved  
T: +45 40 68 89 87

## **France**

ArcelorMittal Construction-Arval  
16 route de la Forge  
F-55000 Haironville  
T: +33 3 29 79 85 85

## **Germany-Deutschland**

ArcelorMittal Construction-Arval  
AMC Deutschland GmbH  
Münchener Strasse 2  
D-06796 Brehna  
T: +49 3 49 54 455 0

## **Hungary-Magyar**

AMC Hungary  
H-1211 Budapest  
Weiss Manfréd u. 5-7  
T: +36 1 350 28 76

## **Italy-Italia**

ArcelorMittal Construction-Arval  
AMDS Italia  
Viale Sicilia 97  
IT-20052 Monza  
T: +39 039 28 12 226

## **Lithuania-Lietuva**

ArcelorMittal Construction Baltic  
Arval  
Ukmerges g. 369A-602  
LT-12142 Vilnius  
T: +370 5 246 15 71

## **Netherlands-Nederland**

ArcelorMittal Construction  
Biezenwei 2  
NL-4004 MB Tiel  
T: +313 44 63 17 46

## **Norway-Norge**

ArcelorMittal Construction-Arval  
Dyrskuevelen 16  
N-2040 Klifla  
T: + 47 63 94 14 00

## **Poland-Polska**

ArcelorMittal Construction-Arval  
Konopnica 120  
PL-96200 Rawa Mazowiecka  
T: +48 46 813 28 00

## **Portugal**

ArcelorMittal Construção-Arval  
Estrada Nacional 3 (Km 17,5)  
Apartado 14  
PT-2071-909 Cartaxo  
T: +351 263 400 070

## **Romania-România**

ArcelorMittal Construction-Arval  
136 Biruintei Bdul, DN3 Km 14  
077145 Pantelimon, Jud. Ilfov  
T: +40 21 312 45 17

## **South Africa**

ArcelorMittal Construction-Arval  
The Place - 1 Sandton Drive  
Sandhurst - Sandton 2196  
Gauteng  
T: +27 (0) 11 722 8621

## **Slovakia-Slovenská Republika**

ArcelorMittal Construction-Arval  
Rožňavská 24  
SK-82104 Bratislava  
T: +421 2 321 326 04

## **Spain-España**

ArcelorMittal Construcción-Arval  
Carretera Guipuzcoa Km 7,5  
E-31195 Berrioplano (Navarra)  
T: +34 948 138 700

## **Sweden-Sverige**

ArcelorMittal Construction  
Sverige AB, Arval  
Västanvindsgatan 13  
SE-65221 Karlstad  
T: +46 (0)54 68 83 00

## **Switzerland-Schweiz**

ArcelorMittal Construction Suisse  
SA  
Industriestrasse 19  
T: +41 56 296 10 10

## **Middle East & International**

ArcelorMittal International HQ  
12 C, Rue Guillaume Kroll  
L-1882 Cloche d'Or  
Luxembourg  
T: +352 4792 1

## **Caribbean**

### **Guadeloupe**

ArcelorMittal Caraïbes  
51 rue Henri Becquerel  
ZI de Jarry  
F-97122 Baie Mahault  
T: +590 26 82 03

### **Martinique**

ArcelorMittal Caraïbes  
Zip de la Pointe des Grives  
F-97200 Fort de France  
T: +596 60 60 00

### **Saint Martin**

ArcelorMittal Caraïbes  
ZAC Lot 3 et 4 La Savane  
F-97150 Saint Martin  
T: +590 52 98 04

### **Dominican Republic**

ArcelorMittal Caraïbes  
Prolongacion Av. Charles de  
Gaulle, 131  
Dominican Republic-Santo  
Domingo  
T: +1 (809) 483 2790

### **Guyana**

ArcelorMittal Caraïbes  
ZI de Degrad des Cannes BP 418  
F-97300 Remi-Remont-Joly  
T: +594 25 52 21

## **Indian Ocean**

### **Réunion**

ArcelorMittal Construction  
Réunion  
ZIN° 2-44 rue Paul Verlaine  
BP 802  
F-97825 Le Port  
T: +262 42 42 42

### **Mauritius**

Route de la Filature  
Mauritius-Riche Terre  
T: +230 248 17 05