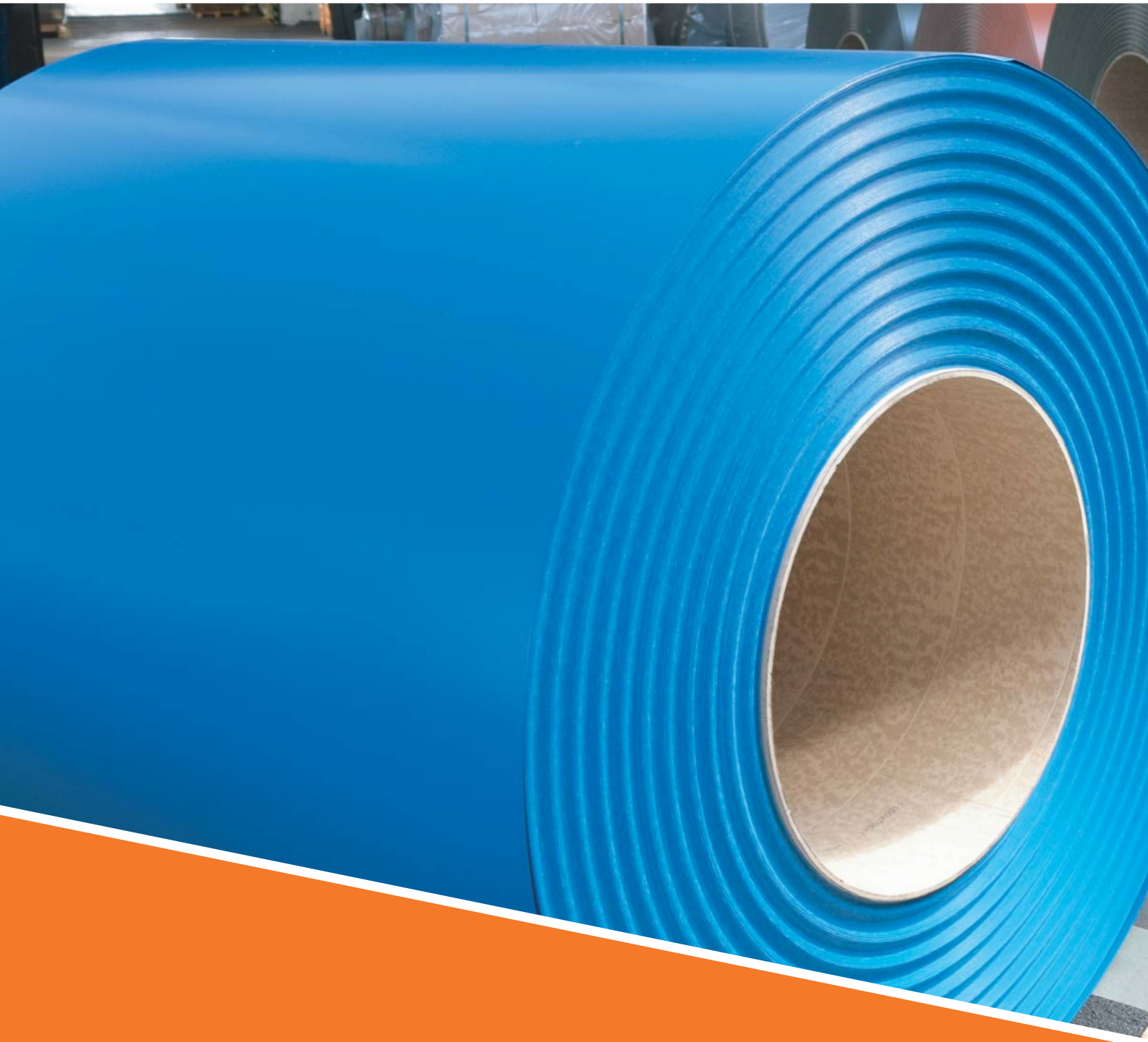
METAL TRADE COMAX, a.s.

COIL COATING



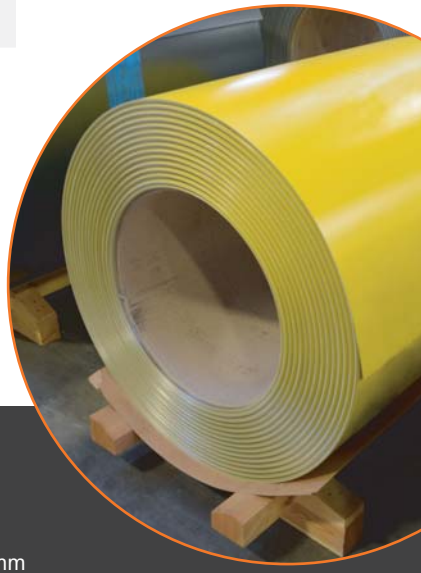
ISO 9001
ISO 14001
ISO 45001
ISO 50001
IATF 16949

TECHNICAL PARAMETERS

COIL-COATING LINE						
COILS	**Thickness**	**Width**	**Internal ø**	**External ø**	**Max. weight of coil**	**Min. order**
Al & Al Alloys EN AW 1050, 3* series, 5005, 5052, 5754	0,4 - 2,0 mm	600 - 1 340 mm	500 mm 600 mm	2 000 mm	8 500 kg	700 - 1 500 kg
FeZn / Fe DX51-DX53, S220-S350, DC01	0,3 - 1,2 mm					1 000 - 2 000 kg

SLITTING				
STRIPS	**Thickness**	**Input width**	**Min. width**	**Internal ø**
Al & Al Alloys EN AW 1050, 3* series, 5005, 5052, 5754	0,3 - 4,0 mm	150 - 1 650 mm	18 mm	400 mm 500 mm 600 mm
FeZn / Fe DX51-DX53, S220-S350, DC01	0,3 - 2,5 mm			

CUTTING			
SHEETS	**Thickness**	**Input width**	**Length of sheet**
Al & Al Alloys EN AW 1050, 3* series, 5005, 5754	0,3 - 4,0 mm	250 - 1 550 mm	300 - 6 000 mm
FeZn / Fe DX51-DX53, S220-S350, DC01	0,3 - 1,5 mm		



Protective foil

Self-adhesive or hot foil, removable foil
Protecting the material from mechanical and aesthetic damage during manipulation and processing
Types: transparent or black&white UV
Thickness: 50 - 100 µm

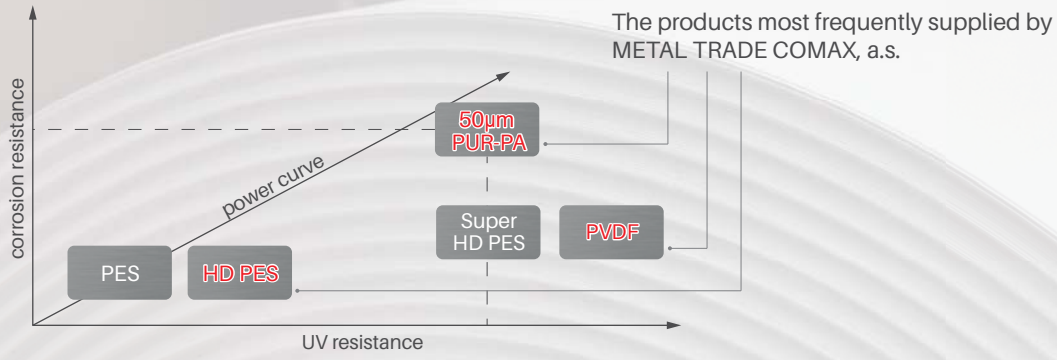
Emboss / Stucco

Thickness (Al): 0,4 - 1,5 mm
Thickness (FeZn): 0,4 - 1,0 mm

TYPES OF COATINGS

	HD PES	HD PES W	SHD PES	PUR-PA	PUR	PVDF	Primer/Glue for PVC	PVC foil	PET foil	BACKCOAT
Surface	smooth	wrinkled	smooth	structured	smooth	smooth	x	structured	smooth	smooth
Total thickness of coat	20 - 27 µm	20 - 30 µm	min 35 µm	45 - 60 µm	30 - 60 µm	28 - 37 µm	7 - 12 µm	120 -150 µm	30 - 50 µm	3 - 18 µm
Resistance	RUV 3	RUV 3	RUV 4	RUV 4	RUV 4	RUV 4	x	x	x	RUV 2
Functional warranty	10 years	10 years	20 years	20 years	15 years	15 years	x	10 years	10 years	1 year (inside use)

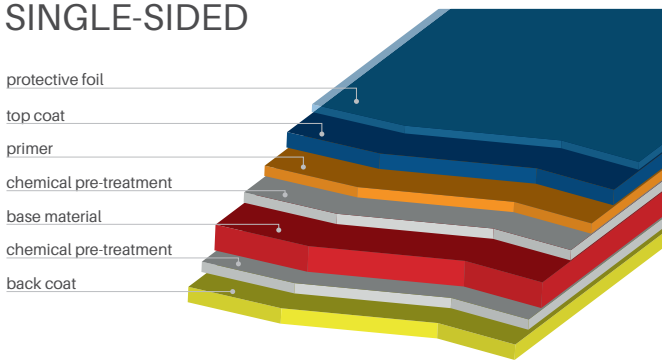
RESISTANCE CHART



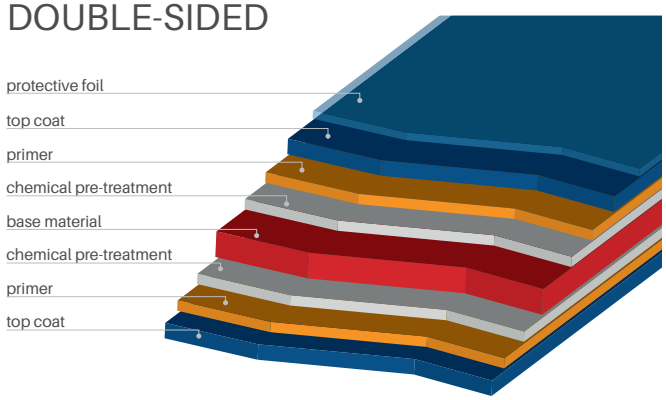
COMPOSITION OF PRE-PAINTED MATERIAL

single-layer | double-layer | three-layer

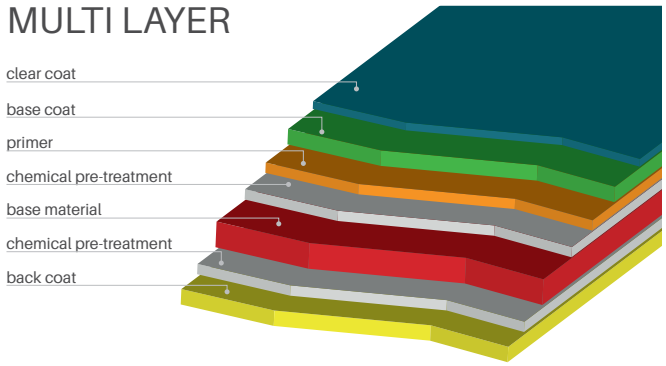
SINGLE-SIDED



DOUBLE-SIDED



MULTI LAYER



SURFACE FINISHES

EXAMPLES


GLOSS


SEMIMATT


WRINKLED


EMBOSS/STUCCO


PUR/PA


PVDF

OUR LABORATORIES

In the **paint laboratory**, polyester- and polyurethane-based paints are processed. With the aid of a metallographic microscope, defects in the paint coat can be revealed and their causes identified. The laboratory also tests the input materials: both the metal substrate (using a tearing machine), and the paints, for which their viscosity, weight content of non-volatile substances, colour deviation of the coat, as well as their glossiness, hardness and flexibility are tested. Thanks to our laboratory laminator, we can also test PVC and PET foils and their adhesiveness using the cupping test.

Laboratory for resistance monitoring of the prepainted material is equipped with solar radiation simulation devices (QUV and Q-Sun), salt fog devices (Q-FOG) and the resistence to water condensation devices (QCT). These tests simulate increased corrosion loads, but there are also performed tests under real outdoor conditions - thanks to this extensive testing we can maintain high quality of the prepainted material.

ACCELERATED LABORATORY TESTS

Salt Fog

- Corrosion resistance
- Cyclic tests
  Salt fog – water condensation – drying – close to reality
- Corrosion in the scribe
- Corrosion and adhesion of the film

Water condensation

- Cyclic test
- Resistance of coating to water condensation

UV exposition + water condensation

- UV + water condensation
- Cool down the surface, cleaning the surface
- Spraying – fast decrease of temperature
- Heat stress
- Cleaning the surface
- Change of colour and gloss

Sun (Xe) exposition

- Possibility of 3D samples
- Xe – the spectrum close to reality
- The possibility of glass filters
- Change of colour and gloss

POLYESTER (PES)

Polyesters are the workhorse coatings of prepainted metal. At their most basic, polyesters can offer an economical product with reasonably good performance across the board. A polyester product would have 20–27µm coating with limited flexibility and moderate durability when exposed as the top-weathering surface. Polyesters have only moderate resistance to the effects of UV light and provide a basic barrier coat to help prevent the substrate from corrosion.

Using

HD polyester represents the most economical choice for such interior and building applications, although the durability can be somewhat limited. The exact specification of each is tailored to the particular application. As an exterior product, polyesters are used for both wall and roof cladding on buildings, particularly in mild and dry climates.

Benefits

- Very good UV resistance (RUV 3)
- Good flexibility
- Up to 400 tones available
- Good price/quality rate

Applications

- Roofing materials, plumbing components
- Roller shutters, louvres, windowsills
- Garage doors, soffits, containers
- Sandwich panels
- Household appliances, etc.

	HD	HD W	SHD
Substrate thickness	0,3 to 2 mm	0,3 to 2 mm	0,3 to 2 mm
Coil-coated strip width	1 340 mm	1 340 mm	1 340 mm
Coat layer thicknes	topcoat: 15-27 µm	topcoat: 15-25 µm	topcoat: 15-25 µm
	primer: 5 - 25 µm	primer: 5-10 µm	primer: 10-25 µm
	backcoat: 5 - 12 µm	backcoat: 5 -12 µm	backcoat: 5 -12 µm
Colour	based on standard	based on standard	based on standard
Gloss (Gardner 60°C)	10 -15 GU matt, 23 - 40 GU semi-matt, 70 - 85 GU glossy	3 - 5 GU	10 -15 GU matt, 23 - 40 GU semi-matt, 70 - 85 GU glossy
Appearance	smooth	wrinkled	smooth
Coat adhesion	≤ 1T	≤ 1T	≤ 1T
Resistance to cracking when bent	≤ 3T	≤ 3T	≤ 3T
Resistance to quick deformation	Very Good	Very Good	Very Good
Pencil surface hardness	F - H	F - H	F - H
Cross cut test	A1	A1	A1
Resistance to salt fog	500 hours in accord. to ČSN EN ISO 9227	500 hours in accord. to ČSN EN ISO 9227	500 hours in accord. to ČSN EN ISO 9227
Resistance to condensation and UV	1 000 hours in accord. to ČSN EN 13523-10	1 000 hours in accord. to ČSN EN 13523-10	1 000 hours in accord. to ČSN EN 13523-10
Thermal resistance	Maximum 80 °C	Maximum 80 °C	Maximum 80 °C
Resistance to fire	Class A1	Class A1	Class A1
Resistence to solvents (MEK)	100x	100x	100x

DRINKING WATER
RESERVOIR - GERMANY

POLYURETHANE – POLYAMIDE (PUR-PA)

PUR/PA is a type of topcoat suitable especially for exterior aplication, due to its outdoor weather resistance. Compared to polyesters, polyurethanes are capable of producing thicker coatings and so where durability is important, high-build polyurethane coatings are finding increasing use. Polyurethanes are capable of a high level of flexibility, which is often desirable for prepainted metal, and they also tend to be a bit more scratch-resistant than polyesters.

Polyurethanes are available with a thickness of 45 - 60 µm with a high-build primer 20 - 30 µm which provide very good corrosion resistance for outdoor exposure. Particularly with the thicker polyurethane coatings, polyamide beads are incorporated, which provide a structured surface and a very high level of scratch resistance.

Generally, the coating system has an excellent forming and profiling properties. The structured surface also provides resistance to scratching.

Benefits
- Very good colour and visual stability
- Very good resistance to chemicals
- Great flexibility and formability
- Great abrasion and scratch resistance
- Great corrosion protection
- Excellent weather resitance

Applications
- Roofing systems
- Building facades
- Gutter systems
- Other steel or aluminum elements

	PUR-PA
Substrate thickness	0,3 to 2 mm
Coil-coated strip width	1 340 mm
Coat layer thicknes	topcoat: 20 - 30 µm
	primer: 25 - 30 µm
	backcoat: 3 - 12 µm
Colour	based on standard
Gloss (Gardner 60°C)	30 - 40 GU
Appearance	structured
Coat adhesion	≤ 1T
Resistance to cracking when bent	≤ 2T
Resistance to quick deformation	Very Good
Pencil surface hardness	F - H
Cross cut test	A1
Resistance to salt fog	1 440 hours in accordance to ČSN EN ISO 9227
Resistance to condensation and UV	1 000 hours in accordance to ČSN EN 13523-10
Thermal resistance	Maximum 80 °C
Resistance to fire	Class A1
Resistence to solvents (MEK)	100x

NOTES

If the coated surface needs to be cleaned, we recommend that you wipe it with a dry cloth or with a cloth moistened with water or detergent solution. Avoid scrubbing with force and using detergents with coarse-grained particles. Commonly available washing and desinfectant agents can be used to wash the surface.

In order to protect the surface against mechanical damage, the coil-coated strip can be equipped with a removable foil. The products do not contain any substances exceeding limits determined by the European standards RoHS and REACH.


BARNSLEY COLLEGE
UNITED KINGDOM

POLYVINYLIDENE FLUORIDE (PVDF)

PVDF is a premium building product with a highly stable resin. Unlike most polymers, the PVDF resin is not affected by UV radiation, so it remains very stable for long periods in sunlight. This gives a very high resistance to fading and chalking and a very good long-term maintenance of gloss and colour.

There is a drawback to the UV resistance in that the UV light can travel through the resin and attack the primer. For this reason, the choice of pigmentation for PVDF coatings is very important since the pigments are required to absorb UV light and protect the primer. Ceramic blue, green and black pigments should not be used on their own because they also permit the passage of UV. The colour palette in PVDF can be limited. This can be overcome in multilayer systems, where either a pigmented base coat or a clear, UV-absorbing top-coat can be used, but the additional coating layers can add considerably to the cost.

PVDF is often modified to provide additional functionality. An example of this is anti-dirt coatings where the exterior surface of the PVDF product will be modified to avoid the retention of dirt. In a similar way, anti-graffiti coatings can be applied to the outer surface, which allows any graffiti to be easily cleaned away.

Using

In Europe, PVDF is almost exclusively used for exterior wall cladding and facades. PVDF is used where the long-term colour durability will be appreciated, particularly for cladding and facades on prestigious buildings.

Benefits

- Excellent UV resistance (RUV 4)
- Very good corrosion resistance
- Highly resistant to chemicals
- Good flexibility

Aplications

- Exterior wall cladding
- Building facades
- Insulated garage door panels

NOTES

If the coated surface needs to be cleaned, we recommend that you wipe it with a dry cloth or with a cloth moistened with water or detergent solution. Avoid scrubbing with force and using detergents with coarse-grained particles. Commonly available washing and disinfectant agents can be used to wash the surface.

In order to protect the surface against mechanical damage, the coil-coated band can be equipped with a removable foil. The products do not contain any substances exceeding limits determined the European standards RoHS and REACH.

Substrate thickness	0,3 to 2 mm
Coil-coated strip width	max. 1 340 mm
Coat layer thicknes	topcoat: 20 µm
	primer: 5 - 17 µm
	backcoat: 5 - 12 µm
Colour	based on the color standard for PVDF
Gloss (Gardner 60°C)	27 - 35 GU
Appearance	smooth

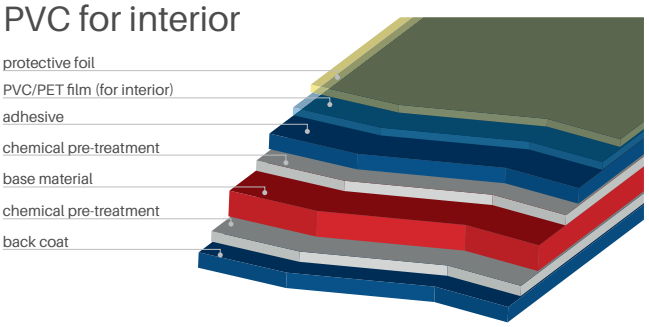
Coat adhesion	≤ 1T
Resistance to cracking when bent	≤ 2T
Resistance to quick deformation	Excellent
Pencil surface hardness	F - H
Cross cut test	A1
Resistance to salt fog	700 hours in accordance to ČSN EN ISO 9227
Resistance to condensation and UV	1 000 hours in accordance to ČSN EN 13523-10
Thermal resistance	Maximum 90 °C
Resistance to fire	Class A1
Resistence to solvents (MEK)	100x

LAMINATE FILMS

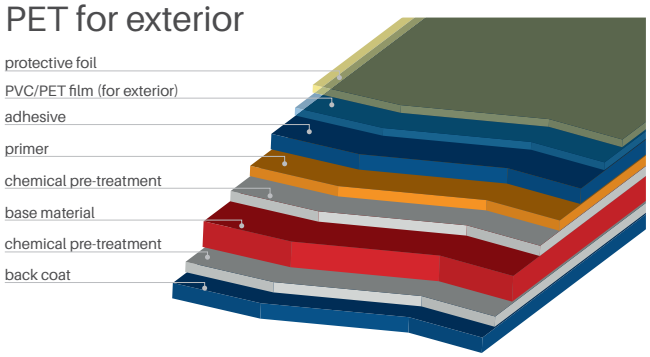
In some cases, the surface properties required from prepainted metal are best produced off-line on a stand-alone film, which can be laminated onto the metal strip. Such products are called laminated film products. Typically, an adhesive is applied to the strip using the top-coat roller coater and the film is applied while this is still hot. The main types of laminate film are: polyvinyl chloride (PVC) and polyethylene terephthalate (PET).

Laminate products advantages include high flexibility and suitability for deep drawing, while they can also have very high gloss and good hardness. Certain films have a primarily exterior role (resistant to rain, sun, heat, etc.) while others are resistant to stains, abrasions or aggressive chemicals. These properties make laminated film products widely used in electrical appliances, furniture, clean-rooms, cold stores and ship-building. For specific appearance, laminated films are available with printed patterns or with embossed textures.

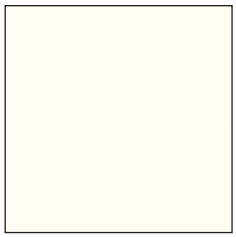
PVC for interior

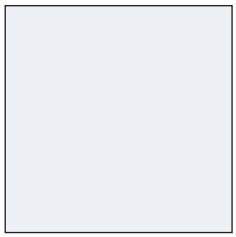


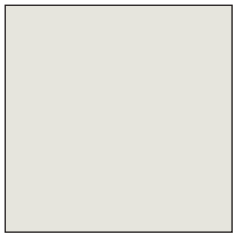
PET for exterior

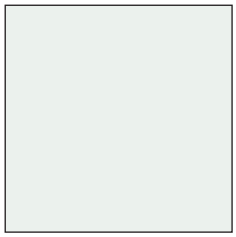


EXAMPLES OF PVC


FOODSAFE 9010


FOODSAFE 9016


FOODSAFE 9002


FOODSAFE 9003

EXAMPLES OF PET


STONE


BRICK

PROCESSING AND SERVICES

Cutting
Cutting of prepainted coils in sheets with lengths of 300 - 6 000 mm. Width 250 - 1 550 mm, steel thickness 0,3 - 1,5 mm, aluminium thickness 0,3 - 4,0 mm.

Slitting
Cutting of prepainted coils in strips.
Input coil parameters: width 150 - 1 650 mm, steel thickness 0,3 - 2,5 mm, aluminium thickness 0,3 - 4,0 mm.
Output strip parameters: min. 18 mm, inner diameter 400/500/600 mm.

Emboss/stucco
With the help of design rollers, a „stucco" design is pressed on both sides of the surface.
It can be carried out on both natural and prepainted material steel thickness 0,4 - 1,0 mm and aluminium thickness 0,4 - 1,5 mm.

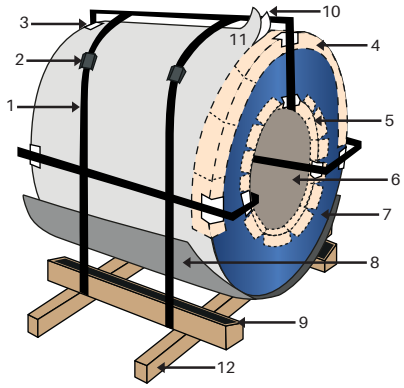
Protective adhesive foil
The strips may be covered with a removable adhesive foil, protecting the material against any mechanical damage during the subsequent handling or further processing. Having removed it partially, it is possible to repeatedly stick the foil to the initial place.
Foil thickness 50 - 100 µm, transparent or UV black and white colour.

Hot foil
Protective foil is applied when hot – without any added adhesives.
After being removed, it is not possible to stick it back to the same place again; after its unsticking, the adhesion is damaged. It is used to prevent any damage during handling; it may be used in the case of more demanding machinery processing. Foil thickness of 100 µm, transparent colour only.

Profiling
Upon the customer's request, we can profile trapeze, wave, tile, welt or ALUKRYT® roofing from the prepainted material.

COIL

Band with horizontal axis (eye to side)

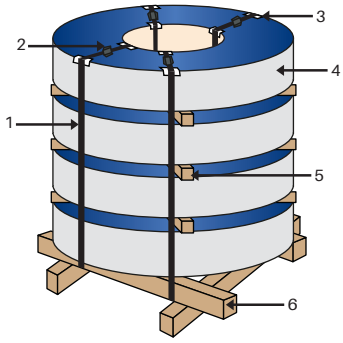


WOODEN CRADLE

1. Steel / plastic strap
2. Steel clip
3. Protective corners / 4. Outer edge protection / 5. Inner edge protection
6. Paper tube
7. Coil
8. Fiberboard (Solid board)
9. Rubber (optional)
10. Paper
11. PE foil / anticorrosion paper
12. Wooden cradle

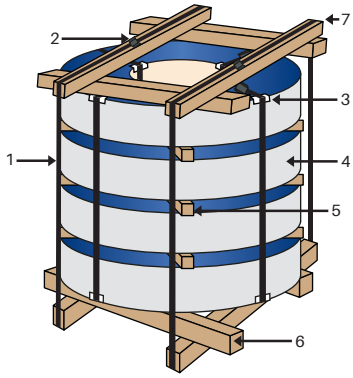
STRIPS

Strips with vertical axis (eye to sky)



WOODEN PALLET + WOODEN INSERTS

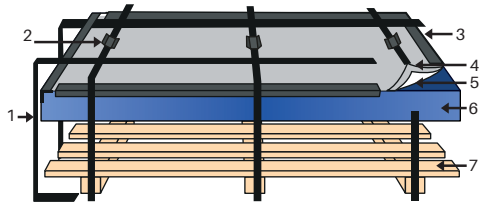
1. Steel / plastic strap
2. Steel clip
3. Protective corners
4. Strips
5. Wooden inserts
6. Wooden pallet



WOODEN PALLET + WOODEN INSERTS + WOODEN LID

1. Steel / plastic strap
2. Steel clip
3. Protective corners
4. Strips
5. Wooden inserts
6. Wooden pallet
7. Wooden lid

SHEETS



WOODEN PALLET

1. Steel / plastic strap
2. Steel clip
3. Edge protectors
4. PE foil / anticorrosion paper
5. Paper
6. Metal sheets
7. Wooden pallet

HEADQUARTERS & PRODUCTION PLANT:

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