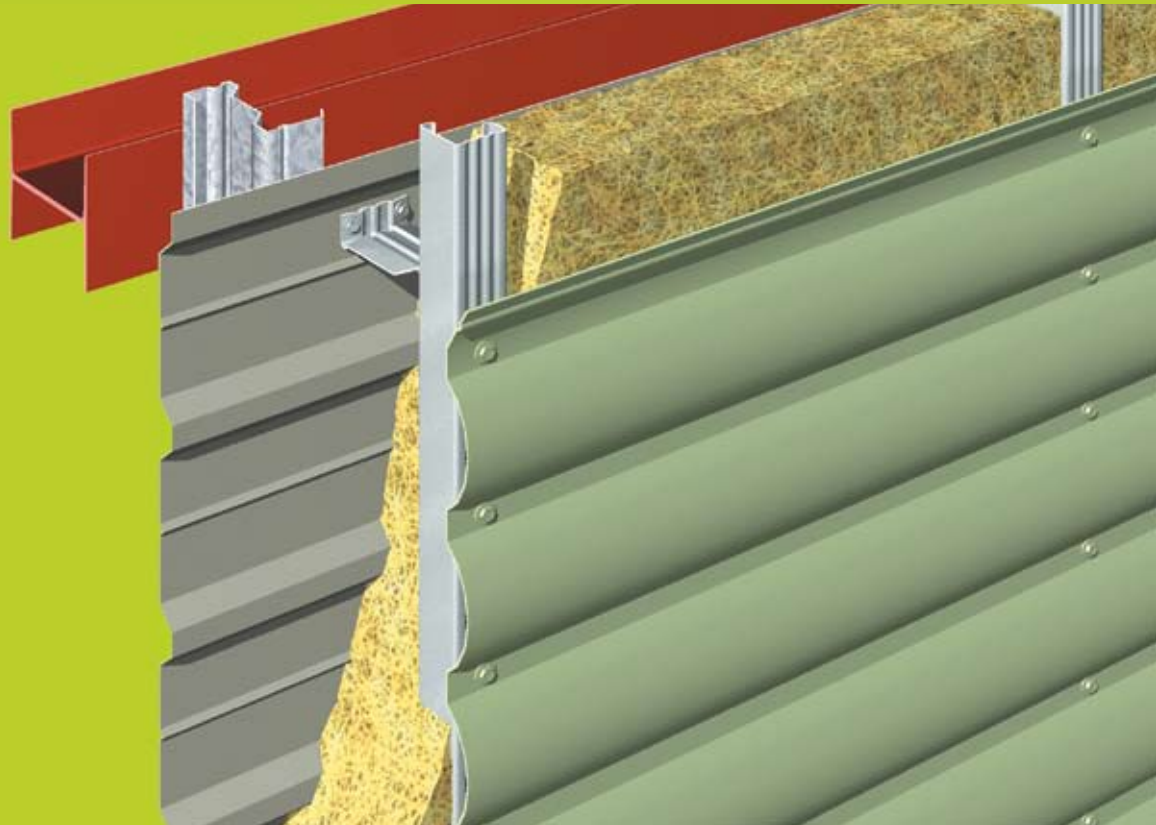


# Arcline 40™ Wall

Colorcoat® assessed cladding system

## Environmental Product Declaration



Tegral's built-up roofing and cladding systems can offer the designer the opportunity to employ sustainable construction methods to achieve both aesthetic appeal and regulatory design standards. With a reputation for proven weather protection, durability and fire performance, Tegral Arcline 40™ has a distinct half-round shape and complements the growing trend for feature elevations and curved building forms. Ideal for large-scale projects, Arcline 40™ maintains a strong visual impact even when viewed from a distance.

An Environmental Product Declaration (EPD) provides a summary of the environmental impacts of a product or system from **cradle to cradle**.

The data published here is based on an initial Life Cycle Assessment (LCA) study conducted by Corus in 2002 in accordance with the international standard ISO 14040-3. This LCA has been subsequently refined and extended to include more products and systems.

It is important that all LCA studies are carried out using this standard and that a critical review is used to ensure high levels of quality and consistency. This will make the results more meaningful for all parties.



### **Corus Colorcoat® supply chain**

Corus has developed close strategic relationships with a small number of market leading roof and wall cladding system manufacturers. Specifying Colorcoat® products through one of these strategic partners ensures access to the very best technical guidance, quick availability and the highest levels of quality and service. Together we provide a quality building envelope solution that delivers peace of mind.

### **Corus Colorcoat® assessed system**

Corus has assessed the environmental impact of this cladding system, which has been designed to perform to the highest standards of thermal performance, air-tightness and structural performance and can be recycled at the end of its life, ensuring the most sustainable system for the building envelope.

### **Confidex Sustain®**

Provides a combined guarantee which covers the durability of the Colorcoat® pre-finished steel product and makes the pre-finished steel building envelope CarbonNeutral - the first in the world. Unavoidable CO<sub>2</sub> emissions from the pre-finished steel cladding system including fixings and insulation, are measured from cradle to cradle and the impact offset. More than just offsetting, the aim is to encourage specification of the most sustainable pre-finished steel products and cladding systems.

### **Cladding system assumptions**

- The functional unit is 1000 m<sup>2</sup> of pre-finished steel cladding in the main body of the roof or wall excluding rooflights and edge details at eaves, ridges and walls.
- The cladding system is covered in entirety and includes fixings, insulation and the internal and external pre-finished steel cladding sheets and their associated spacers. Sealant strips, mastics and tapes have been excluded due to their negligible impact on the whole system analysis.
- The cladding system lifetime is defined as the appropriate Confidex® Guarantee Period for the pre-finished steel product specified e.g. Colorcoat HPS200® Ultra or Colorcoat Prisma®.
- Thermal performance is specified in accordance with the Irish Building Regulations Part L, Elemental Heat Loss Calculation Method, nominal U-value 0.27 Wm<sup>-2</sup>K for walls and 0.20 Wm<sup>-2</sup>K for roof systems. Detailing and installation are in accordance with the MCRMA, system manufacturers installation guide and Corus best practice.



## Material declaration

Material content per 1000 m<sup>2</sup> cladding system.

Steel	kg	%	Others	kg	%
Cladding (inner and outer sheet)	10,949.66	70.36	Insulation	3,680.00	25.18
Spacer	648.52	4.23			
Fixings (stainless steel)	35.39	0.23			

## Cradle to cradle analysis

The cradle to cradle analysis covers all life cycle stages.

### End of life

Includes impacts from:

- built-up system steel content 79% recycled, 15% re-used, 6% landfill.
- composite panel steel content 100% recycled, 0% re-used, 0% landfill.
- all insulation to landfill (foam and mineral wool). Although they have the potential to be recycled current practice for demolition, and other limitations, results in most insulants being landfilled.
- 95% recovery of foam filled composite panel blowing agent by fridge recycling process.

### Production of system components

Includes impacts from:

- production of pre-finished steel and spacer bars.
- production of insulation.
- production of fixings and plastic components.

### Use

As Colorcoat HPS200<sup>®</sup> Ultra and Colorcoat Prisma<sup>®</sup> are maintenance free, no significant environmental exchanges occur during the building lifetime.

### Transport

Includes impacts from:

- delivery from Corus to system manufacturer.
- delivery to site.
- delivery of insulation and other system components to site.

The difference between the number of vehicles required to transport built-up and composite systems to site is also accounted for.

### System installation

Includes impacts from:

- allowances made for cladding side and end-laps.

### System manufacture

Includes impacts from:

- profiling of pre-finished steel for cladding.
- composite panel manufacture (foam and mineral wool).
- 6% of foam filled composite panel blowing agent lost in manufacture.



Note: The impacts listed cover all Colorcoat<sup>®</sup> assessed systems and not all may be applicable to this system.



## Life cycle assessment

Environmental impact categories:



### Global warming

The rising of global temperatures due to emissions of green house gases. Measured in kg eq.CO<sub>2</sub>. Includes the impact of high global warming potential gases such as the Hydrofluorocarbons (HFCs) used in PIR foam manufacture.



### Acidification

The damage caused to trees and life in lakes and rivers as a result of the increase in pH of terrestrial watercourses due to the release of acidifying gases to atmosphere.



### Eutrophication

A form of water pollution that can result in the loss of plants and animals in aquatic ecosystems. The release of nitrogen and phosphorus from fertilisers and detergents and organic matter from effluent can lead to an acceleration of the natural oxygen depletion in water courses.



### Photochemical oxidant formation

Emissions of Volatile Organic Compounds (VOCs) and nitrogen oxides can interact in the lower atmosphere to cause smog which can be harmful to human health and the environment.



### Resource depletion

The depletion of natural resources such as oil, coal and metals due to their extraction and consumption.









### Embodied energy

The quantity of energy required to manufacture, and supply to the point of use, a product, material or service. The embodied energy of pre-finished steel is comparable to many other construction materials. However, as it can be recycled without effecting quality, the embodied energy is reduced over multiple life cycles. Therefore, the embodied energy is much less significant than the energy consumed through heating, cooling and lighting of a typical building.

## Environmental impacts of the system at the relevant life cycle stages

Per 1000 m<sup>2</sup> cladding system.

	Units	Colorcoat HPS200® Ultra			Colorcoat Prisma®		
		Production and installation	End of life	Total	Production and installation	End of life	Total
	kg eq. CO <sub>2</sub>	43,173.55	-20,051.73	23,121.82	42,843.95	-20,002.29	22,841.66
	kg eq. SO <sub>2</sub>	100.41	-22.58	77.83	99.09	-22.39	76.70
	kg eq. PO <sub>4</sub> <sup>-</sup>	13.82	-3.86	9.96	13.56	-3.82	9.74
	kg eq. ethylene	85.41	-17.99	67.42	85.24	-17.97	67.27
	kg eq. Sb	224.23	-102.68	121.55	218.23	-101.78	116.45
	GJ	545.01	-208.21	336.80	534.28	-206.60	327.68



## The Colorcoat® brand

The Colorcoat® brand is the recognised mark of quality and metal envelope expertise from Corus. With over 40 years experience, we actively develop Colorcoat® products and processes to reduce their environmental impact to a level beyond mere compliance. All Colorcoat® products are manufactured in factory controlled conditions, providing clear advantages onsite in terms of speed of construction and minimising social disruption.

### Colorcoat® products and services

Colorcoat® products offer the ultimate in durability and guaranteed performance reducing building life cycle costs and environmental impact. Colorcoat® products manufactured in any UK Corus site are certified to the independently verified international management system, ISO14001 and are 100% recyclable. Corus has detailed Life Cycle Costing and Life Cycle Assessment information that demonstrates the positive performance of Colorcoat® products when compared with other alternatives. This is available from [www.colorcoat-online.com](http://www.colorcoat-online.com)

#### Colorcoat HPS200® Ultra

The latest generation product for roof and wall cladding, Colorcoat HPS200® Ultra offers an exciting new colour range and dramatically improved colour and gloss performance. Maintenance free, Colorcoat HPS200® Ultra delivers twice the colour and gloss retention of standard plastisols, and is now guaranteed for up to 40 years, combining outstanding performance with unrivalled reliability.

#### Colorcoat Prisma®

The ideal choice to deliver eye-catching buildings that will stand the test of time. Technically and aesthetically superior to PVDF (PVF2), Colorcoat Prisma® is readily available in the most popular solid and metallic colours. All backed up by the comprehensive Confidex® Guarantee providing cover for up to 25 years on walls.

#### Confidex® Guarantee

Offers the most comprehensive guarantee for pre-finished steel products in Europe and provides peace of mind for up to 40 years. Unlike other guarantees, Confidex® covers cut edges for the entirety of the guarantee period and does not require mandatory annual inspections.

#### Colorcoat® Building Manual

Developed in consultation with architects and other construction professionals, the Colorcoat® Building Manual incorporates over 40 years of Colorcoat® expertise. It contains information about sustainable development and the creation of a sustainable specification.

If you require any further information please contact the Colorcoat Connection® helpline on **+44 (0)1244 892434**.

Alternatively further information can be found in the Colorcoat® Building Manual or at [www.colorcoat-online.com](http://www.colorcoat-online.com)



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