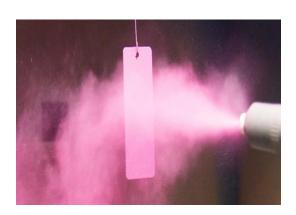


Powder coating solutions

















Architecture
Automotive
General industry
ACE Off Road
Electrical & Lighting
Appliances
Furniture
Glass & Ceramic
Anticorrosion
Functional
Specialities













Architecture

RIPOL offers a complete range of architectural powder coating systems based on durable and super durable polyester resins. These products are formulated especially for aluminum, steel and galvanized steel applications. They have excellent mechanical, weathering resistance properties and durability to withstand outdoor environment conditions. The range includes a variety of finishes and effects and are marketed under the trade name **RIPOL Series 5.** They are designed to meet **QUALICOAT** and **GSB** specifications to ensure excellent performance and color consistency. Can also be used for the protection and decoration of indoor

Series 59L HWF Façade Polyester

Highly weather-resistant Polyestersystems Weathering Class 2 / GSB Master

Series 59 **HWF**

Series 5 PEA Classic Façade Polyester

Weather-resistant Polyester systems
Weathering Class 1 / Qualicoat Class 1 / GSB Standard

Series 5 SUBLIMA SBCR

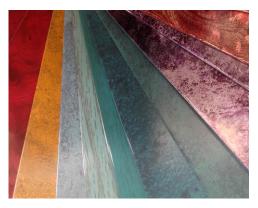
Powder Coating Systems for the Dye Sublimation Technology



- Aluminum profiles,
- Window Frames,
- Doors and Facades
- Garden Furniture, Verandas
- Sun Shades and Shutters

- Steel or galvanized steel for cladding
- Balustrades and Hand Rails
- Garage Doors
- Fencing and Railings
- Ceiling Tiles





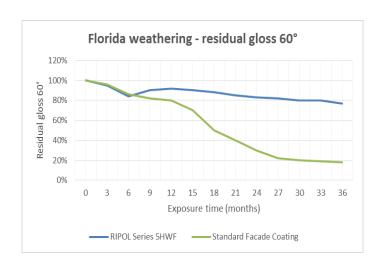


Architecture Series 59L HWF Façade Polyester

Highly weather-resistant Polyester powder coating systems for facades.

RIPOL Series 59L series is particularly suited to severe UV exposure conditions in accordance with the inspection and quality guidelines as per GSB Master and/or Qualicoat Class 2 corresponding to three-year Florida outdoor exposure. RIPOL Series 59L offers significantly higher gloss retention and resistance to color change combined with maximum film integrity and outstanding mechanical properties to ensure long-term aesthetic and functional protection. For higher requirements in corrosion protection on steel bases, the application of a powder Double Layer system is recommended with the same weathering capabilities and consisting of suitable RIPOL Primers and RIPOL Series 59L.

Weathering Class 2 / GSB Master



- · Very High weathering resistance/protection
- Easy application
- Good surface flow
- · Excellent coverage and chargeability
- Minimal picture frame effect
- · High recycling rates
- No toxic contents
- TGIC-free heavy metals free
- Environment-friendly production
- Good storage stability



Series 59 **HWF**

Products

Services

Certifications

About us

Home

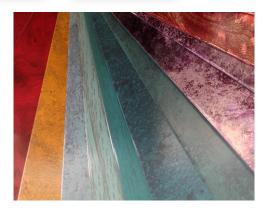


Architecture
Automotive
General industry
ACE Off Road
Electrical &
Lighting
Appliances
Furniture
Glass & Ceramic
Anticorrosion
Functional
Specialities

Architecture Series 5 Sublima SBCR Powder Coating Systems for the Dye Sublimation Technology

Dye Sublimation: the process of transferring three-dimensional images onto parts and products, known as dye sublimation, has been successfully applied to powder coated products. With RIPOL SUBLIMA, high-resolution images, designs, and wood-grain looks can be transferred to a variety of powder coated products made of aluminum, steel, and glass. RIPOL SUBLIMA powder coatings are specially formulated to accept ink via the sublimation process without issues relating to paper sticking to the surface of the coating. Endless effects and patterns such as wood grain, marble, granite, custom designs or photographic pictures can be transferred onto RIPOL SUBLIMA powder coated surfaces. The powders work with film from all the major suppliers. Film is available in hundreds of patterns.

- Easy application provides excellent edge
- coverage on conventional and multi-faceted pieces
- Consistent quality across and between different parts
- Good surface flow
- · Excellent coverage and chargeability
- No toxic contents -TGIC-free; heavy metals free
- Environment-friendly no solvents emission
- Good storage stability











Automotive

To meet industry's high demands for function and design, high-performance coating systems are available for parts and components used throughout the automotive industry. We consistently tailor our products to the needs and requirements of our customers. We can formulate coating systems for commercial vehicles, buses, and trains offering excellent protection as well as high color accuracy and gloss stability. RIPOL powder coatings are also used for interiors and to coat special parts under extreme wear and tear.

Our products cover the following segments:

- Trailers and constructors
- Automotive
- Bus manufacturers
- · Heavy duty truck industry
- Rail industry

Car Wheels

Includes a wide range of primers and coating systems for aluminum wheels.

Products are fine-tuned for different application conditions to provide the best possible basis for subsequent coatings. This portfolio offers a complete set of products tailor-made for the Aftermarket industry.

Functional Automotive

Developed for extreme resistance to chemicals and corrosion .This line provides outstanding resistance to aggressive agents, as is used for brake cables, engine blocks, steel springs and other under the hood components.







Products

Services

Certifications

About us

Home



Architecture
Automotive
General industry
ACE Off Road
Electrical &
Lighting
Appliances
Furniture
Glass & Ceramic
Anticorrosion
Functional
Specialities

General industry

RIPOL provides a broad range of efficient, economical and environmental friendly powder coating solutions for **General Industrial Applications**. They are designed for both indoor and outdoor applications and offer good mechanical properties, good anticorrosion protection, excellent coverage and a wide selection of colors and textures.

- Shelving and warehouse
- Radiators
- Air conditioning
- Machine parts

- Fences and railings
- Rail Traffic
- Heavy road traffic

RIPOL PF Series
Polyester Systems for Coil Coating
& Post Forming Technology



Specialties

- Scratch resistant
- Anti Bacterial properties
- Out-gassing properties
- Thin-film coatings







Products

Services

Certifications

About us

Home



Architecture
Automotive
General industry
ACE Off Road
Electrical &
Lighting
Appliances
Furniture
Glass & Ceramic
Anticorrosion
Functional
Specialities

General industry

RIPOL PF Series Polyester Systems for Coil Coating & Post Forming Technology

RIPOL PF Series includes high performance, powder paint systems with enhanced reactivity, specifically designed for the Powder Coil technology and for Post-Forming after powder coating. PF Series is designed for exterior applications. It combines excellent hardness and performance characteristics while retaining formability. Applications include appliances, furniture and perforated or embossed metal.











ACE Off Road Agricultural, Construction and Earth moving equipment Lawn and Garden

With the ACE Series RIPOL provides powder coating systems that meet the industrial corrosion resistance standards of the Agricultural, Construction and Earth moving equipment sector. They are based on **multi-durable Polyester-based systems** which guarantee successful performances, even in challenging conditions. The manufacturing process involves a tight color and gloss control procedure and the products are formulated to meet the highly demanding mechanical requirements (adhesion, hardness, flexibility, impact resistance) and to provide excellent edge protection by applying even a single-coat system. They also offer good resistance to the most common chemical agents used in this specific market. A wide range of parts made of different substrates such as aluminum, steel and galvanized steel are used in this sector.

For steel parts, a **RIPOL "double-coat**" system is recommended (the system comprises a corrosion-protecting powder primer and a **RIPOL ACE Series** polyester finish coat).

RIPOL ACE Series consists of two topcoat performance classes : **Series 59L** and **Series 69L** . You can also choose from different levels of durability to find the perfect match for your ACE component or part.

- Tractors,
- Combine harvesters,
- Ploughs,
- Crane and excavators

- Forklifts,
- Trailers,
- Trucks,
- Off-road equipment and machinery











Electrical & Lighting

RIPOL offers tailor-made powder coating solutions for the electrical segment.

Polyester or epoxy-polyester-based powder coatings are employed depending on whether component is to be used for interior or exterior application.

For the Lighting industry RIPOL offers products specifically designed to meet the complex requirements of this sector (durability, corrosion protection, yellowing resistance, and superior design).

- Interior lighting systems
- Urban lighting systems
- · Electrical control panels,
- Transformers











Appliances

The standards for the aesthetic quality of the finishes along with the demand for various colors and special effects are continuously increasing in the Appliances sector.

RIPOL can develop tailor-made powder coating finishes that combine aesthetics with durability.

RIPOL can develop tailor-made powder coating finishes that combine aesthetics with durability. RIPOL Series 1 includes standard and special effect finishes that meet the latest trends in design, décor, and colors.

The products are available in a wide array of standard and custom-colors.



- Refrigerators,
- Washing machines
- Dishwashers
- Microwave ovens
- Air conditioning
- Ironing boards









Furniture

RIPOL offers a selection of powder coatings systems for exterior and interior applications. The product range includes high-gloss, semi-gloss and matt coatings with various textures such as coarse structured, fine textured, hammered finishes, marble-like coatings, metallic, etc. New versions are constantly being developed to ensure a maximum of design freedom in the furniture segment. The products designed for this industry show outstanding mechanical properties and excellent edge coverage in order to reduce the danger of corrosion.

- Office & School Furniture
- Kitchen & Bathroom Furniture

- Garden Furniture
- Urban and public Furniture

RIPOL can develop tailor-made powder coating finishes formulated with an outgassing forgiving agent in order to coat cast parts and hot galvanized steel, which according to the surface characteristics tend to outgas during the curing process.



Office Furniture



Bacteri QQ



home furnishings





Glass & Ceramics

RIPOL has expanded its application from ferrous and non-ferrous substrate to non-metal substrate.

RIPOL Vitrum Series is designed to coat different glass materials. This powder-coated glass can be used for bathroom, kitchen, bedroom and office structures.

RIPOL Ceramic Series is designed to coat different pottery/ceramic materials. It is now used as alternative finish for :

Tested to be more consistent than wet paint and more flexible than pre-colored and tinted glasses, customers can freely choose from a variety of colors and finishes available.

- beverage bottles
- candleholders
- · various glass decors
- white board
- roof tiles
- flowers pots
- home decorative ceramics
- garden ceramic decors

Vitrum













Anticorrosion

Corrosion of steel leads to significant high maintenance costs. Adequate surface pretreatment and the use of the most appropriate anticorrosion system on the substrate to be coated will extend the life of the painted structure. RIPOL offers a range of products to provide superior Anticorrosion Solutions for every substrate to be coated.

Single-coat system for galvanized steel

High performance durable Polyester-based single-coat system optimized for this substrate. **Double-coat systems for steel structures to be exposed outside**

These systems combine an efficient chemical or mechanical pretreatment of the substrate, a suitable powder primer and a Polyester-based powder coating finish in order to achieve a higher level of corrosion protection.

RIPOL uses internationally recognized testing methods to ensure the powder coatings comply with standards for weather-resistance and mechanical properties.

- Zinc Rich
- Zinc-free
- Universal Filler
- Shop Primer
- Primer GS for galvanized structures
- Primer ALU for aluminum surfaces











Products

Services

Certifications

About us

Home



Architecture Automotive General industry ACE Off Road Electrical & Lighting **Appliances Furniture Glass & Ceramic** Anticorrosion **Functional Specialities**



Functional Powder Coatings

RIPOL provides powder coating systems specifically developed to meet specific functional requirements in specific environments such as:

- Gas tanks
- Reservoirs
- Valves and Fittings

- Tubes
- REBAR
- Pipelines

The highest standards are required for anticorrosion protection and chemical aggression.

Series 2 FBE - Fusion Bonded Epoxy systems

fusion bonded epoxy thermosetting coatings specially developed to protect underground pipelines. Series 2FBE is also an ideal corrosion protection coating on REBAR used to strengthen concrete as well as on valves and fittings, storage tanks and electrical insulation.







Series 2 EPX Xtra Wall - Epoxy High Thickness Primer

Special epoxy based powder coatings that are widely used to protect concrete reinforcing bars (REBAR) and steel reservoirs from corrosion. Series 2 EXP Xtra Wall are applied onto preheated steel components to ensure optimal adhesion and outstanding cathodic disbonding resistance. Exceptionally tough high build film with thickness > 600 μ on pre-heated surfaces. No drips, no runs. Excellent corrosion resistance.





SPECIALTIES















Energy-efficient
Anti Bacterial
Out-gassing
Thin-film coatings
Conductive/ ESD
Scratch resistance

Energy-efficient coatings

RIPOL BT Series - Low Temperature Curing powder coating for Industrial applications

RIPOL BT includes a range of products specifically engineered to meet demands of today's Original Equipment Manufacturer (OEM) market for a powder coating that cures faster and/or at low temperatures, driving an increase in productivity, a reduction in energy costs and the ability to coat more heat sensitive objects.

They are easy to use and offer a good quality finish, providing excellent coverage.RIPOL BT includes products which can cure at temperatures as low as 140°C/20min, 150°C/15min, or 160°C/10min.

- Lower temperature, higher energy savings
- Better productivity, lower production cost
- Taking on heat sensitive materials



ENERGY EFFICIENCY

Lowering Operating Cost





Energy-efficient
Anti Bacterial
Out-gassing
Thin-film coatings
Conductive/ ESD
Scratch resistance

Antimicrobial powder coatings - Series BACTERI Ag

RIPOL Bacteri Ag antimicrobial powder coatings are used to provide protection against the growth of microorganisms in a wide range of applications. They incorporate environmentally sustainable antimicrobial additives capable to release silver ions by way of an ion exchange mechanism. Silver is known to be a safe material for human contact and highly effective to inhibit the growth of a broad spectrum of micro-organisms and has many benefits over alcohol-, chlorine-, or ammonium-based antimicrobials. Sustained effectiveness of these additives has been certified by an independent, approved testing institute. Antimicrobial coatings possess temperature stability and excellent color retention. They are also durable and capable of providing maximum protection over an extended period of time. RIPOL Bacteri Ag antimicrobial powder coatings are available in all resin chemistries.













Energy-efficient
Anti Bacterial
Out-gassing
Thin-film coatings
Conductive/ ESD
Scratch resistance

Outgassing Friendly – Low Cure

Fisheyes, bubbles, and small holes are caused by outgassing: the release of gasses from the zinc-coated metal as the part is baked in the powder coating process.

RIPOL offers you products which permit outgassing from the porous zinc surface before cross-linking and thus lead to a smoother surface. The formula provides for longer cure times and lower temperatures, allowing the gas to penetrate the coating while it is still in a gel form. This results in a reduction in the number of fisheyes in the cured powder coating.

Tempering of the coating components is recommended in the case of extreme applications. Tempering involves heating of metal components prior to coating in order to release gases The selected temperature level should be above the actual curing temperature of the powder coating.

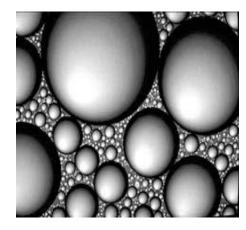


Properties

- Outgassing inhibitive product design
- Low cure

Typical applications

- Hot-dip galvanized workpieces
- Cast parts
- Base steel alloys



Products

Services

Certifications

About us

Home





Specialties

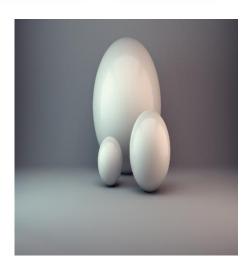
Energy-efficient
Anti Bacterial
Out-gassing
Thin-film coatings
Conductive/ ESD
Scratch resistance

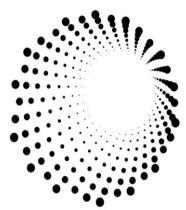
Series GC

Controlled & Selected Particle Size Distribution PSD

The quality of powder coatings is influenced by many factors. One of the most important is particle size distribution (PSD). High product quality requires a narrow particle size distribution with a sharp and well-defined top cut and a low amount of fine particles.

RIPOL Series GC includes a range of powder coatings where the most advanced formulation and manufacturing technologies are combined. These products are manufactured with a special process which enables to control and select Particle Size Distribution in order to offer better and consistent appearance and color standards with optimal operational efficiency in terms of uniform powder utilization over a broad range of traditional application thicknesses.







Energy-efficient
Anti Bacterial
Out-gassing
Thin-film coatings
Conductive/ ESD
Scratch resistance

Conductive/ ESD powder coatings with discharging properties

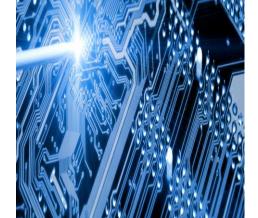
RIPOL ESD Series includes a range of powder coatings specifically designed to meet requirements where sensitive electronic equipment must be protected from ESD (Electrostatic Discharge) due to static buildup. The coating acts as a protective film that dissipates static charge occurring onto the surface. With RIPOL ESD coatings valuable electronic components are kept safe in use or in storage. RIPOL ESD coatings in this area of application have a surface electrical resistance of $105-109~\Omega$ at a film thickness of $70-90~\mu$ m (increasing the film thickness will improve the electrical resistance accordingly). RIPOL ESD powder coatings are suitable for applications such as electronic enclosures, computer work stations, work benches and work surfaces, shelving, storage organizers, and more. RIPOL ESD powder coatings are ideal to coat components which have to comply with the ATEX Regulations.



Series Electrostatic Discharge



ESD Protective



19LN1F95220 BLACK Conductive/ ESD powder coatings

Conductive material	Semi-conductive material	Dissipative material	Anti-static material	Insulating material
10 ⁻¹ Ω	10 ⁵ Ω	10 ⁹ Ω	10 ¹² Ω	>10 ¹² Ω



Energy-efficient
Anti Bacterial
Out-gassing
Thin-film coatings
Conductive/ESD
Scratch resistance

Series AG Powder Coatings with Scratch Resistance properties

RIPOL Series AG includes a range of powder coatings specifically designed to delivers added value in terms of durable, scratch resistance - e.g. less prone to drag-marks, reduced dirt- and handling-related scratch, etc.

With a RIPOL AG formulation, the scratch resistance can be improved significantly over that of a conventional hybrid-EP - based powder coating, and with no additional wear-and-tear on the powder application equipment

Abrasion resistance is the durability of a coating at profound abrasive stress such as laminar forces. Abrasion resistance is different to scratch resistance which is a single point pressure impact combined with a movement. Typically scratches are caused by tips of a hard material, e.g. a needle or other sharp edged objects. Scratch resistant powder coatings are not necessarily equally good in terms of abrasion resistance.

















Series 5 PEA
Polyester Facade



Fassaden
Decorative Finishes

Series 6 PEI Polyester Industrial



Outdoor

Decorative Finishes





Series 1 HEP

Hybrid epoxy polyester



Indoor
Decorative Finishes

Series 2 EPX

Epoxy & Epoxy modified





Series 5 PEA
Polyester
Facade

PEA	PEA Architectural & Durable Polyester Systems										
				Approvals/Certifications			Market/Applications				
Series	Finish	G	loss	GSB Master	GSB Standard	Qualicoat Class 1	Weather. Category	Fassaden	SBCR	ACE	PF
59L	SMO	GLO	80 ±5	•			2	•		•	
59L/S0	SMO	SGL	70 ±5	•			2	•		•	
5 PF	SMO	TM	TM		•	•	1				•
58L	SMO	GLO	80 ±5		•	•	1	•			
58/S0	SMO	SGL	70 ±5		•	•	1	•			
56L	SMO	SGL	60 ±5			•	1	•			
55R	FTX	SDM	SDM			•	1	•	•		
52L	SMO	MAT	25 ±5		•	•	1	•	•		











Series 6 PEI
Polyester
Industrial

PEI	Industrial Polyester Systems - not for Fassaden			
Series	Finish	Glossiness Range		
69L/T0	SMO	HGL	>85	
69L	SMO	GLO	85-75	
69B	GBS	SGL	SGL	
68L67L	SMO	SGL	80-70	
66L65L	SMO	SGL	60-50	
66R65R	FTX	SGL	SGL	
64L63L	SMO	SDM	40-30	
64R	FTX	SDM	SDM	
62L	SMO	MAT	30-20	
61L	SMO	DMAT	20-10	









SMO	Smooth	HGL	Super Gloss
GBS	Structured/Bucciato	GLO	Glossy
FTX	Fine Textured	SGL	Semigloss
NTK	Antik Effects	SDM	Semi-matt
MRB	Marble Effects	MAT	Matt
MAR	Hammered/Martelé	DMAT	Deep Matt



Products

<u>Services</u>

Certifications

About us

<u>Home</u>



Series 1 HEP Hybrid EP

НЕР	Industrial Hybrid EP Systems -Indoor			
Series	Finish	Glossiness Range		
19L	SMO	GL	>80	
19B	GBS	SGL	SGL	
18L/17L	SMO	SGL	80-70	
16L/15L	SMO	SGL	60-50	
16B	GBS	SDM	SDM	
16R	FTX	SGL	SGL	
14L	SMO	SDM	45-35	
14R	FTX	SDM	SDM	
14B/12B	GBS	MAT	MAT	
13L/12L	SMO	MAT	30-20	
11L	SMO	DMAT	20-10	



SMO	Smooth	GLO	Glossy
GBS	Structured/Bucciato	SGL	Semigloss
FTX	Fine Textured	SDM	Semi-matt
NTK	Antik Effects	MAT	Matt
MRB	Marble Effects	DMAT	Deep Matt
MAR	Hammered/Martelé		









Products

Services

Certifications

About us

<u>Home</u>



Series 2 EPX
Epoxy &
Epoxy
modified
systems

EPX	EPX - Epoxy Systems - Indoor				
Series	Finish	Glossiness Range			
29L	SMO	GL	>80		
29B	GBS	SGL	SGL		
28L/27L	SMO	SGL	80-70		
26L/25L	SMO	SGL	60-50		
26R	FTX	SGL	SGL		
24R	FTX	SDM	SDM		
22L	SMO	MAT	30-20		
21L	SMO	DMAT	20-10		







SMO Smooth GLO Glossy GBS Structured/Bucciato SGL Semigloss FTX Fine Textured SDM Semi-matt MAT Matt DMAT Deep Matt







Products

Services

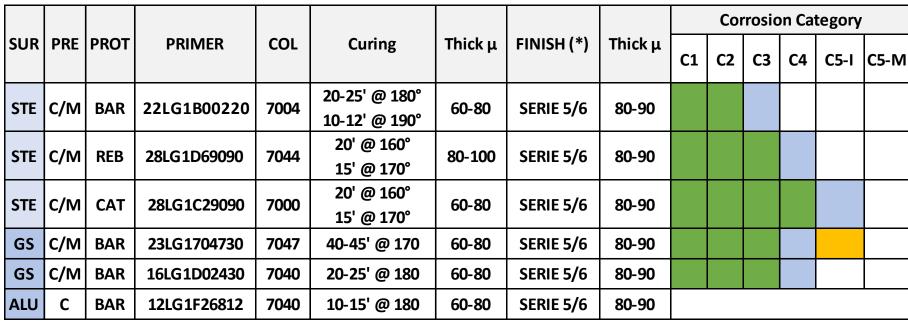
Certifications

About us

Home







High durability (≥15 years)

Medium durability (5 to 15 years)

Limited durability (2 to 5 years)



SUR = Surface: STE - Steel - GS - Galvanized steel

PRE = Surface Treatment:

C - Chemical: Crystalline Zn-Ni Phosphating and passivation / comparable phosphate-free surface treatment processes

M - Mechanical : Sanblasting Ra 6-12µ; Sa ≥ 2,5

PROT = Protection: BAR(Barrier Protection); REBAR - Reinforced Barrier Protection; CAT - Cathodic Protection

Curing TDS - see Technical Data Sheet

RIPOL Systems:

PRIMER FONDO B002 - EPX 22LG1B00220 PRIMER ZINC-FREE D690 - EPX 28LG1D69090 PRIMER ZINC RICH C290 - EPX 28LG1C29090

PRIMER EPX-GS - EPX 23LG1704730 Zinc-free for Galvanized steel PRIMER GS D024- HEP 16LG1D02430 Zinc-free for Galvanized steel PRIMER ALU F268- HEP 12LG1F26812 Zinc-free for Aluminum

SERIE 5 PEA- Facade Polyester - Qualicoat and GSB Certified To improve gloss retention use PEA SERIE 59 HWF GSB Master Class SERIE 6 PEI - Industrial Polyester



Decorative
Metallic &
Special Effect
Finishes















Clear Coat and Clear Coat Metallic

RIPOL Clear Coat includes a range of both transparent and colored transparent coatings available in glossy, matt, and satin finishes.

RIPOL Clear Coat are available in PEI Industrial Polyester, and HEP Hybrid epoxy-polyester version. They improve the aesthetics of the finished piece and add depth to a color. Metallic and pearl effects are available to give an even more spectacular overall effect.

The **Excellence Collection** covers weather resistant metallic and special effects finishes suitable for exterior applications (Facade industry).

- Pearl Mica Metallic finishes
- Raffaello marble-like finishes
- Anodizing effects
- Antiques Décor

The **Elegance Collection** includes metallic and special effects finishes for interior design. Available in a wide variety of colors, shades, effects and textures, RIPOL Special Effects powder coatings create design freedom without compromising strong functional properties.

- Metallic effects
- Antiques Décor
- Pietra stone-like effects

Hammertones

Fine textured metallic

Marble-like effects























Products

Services

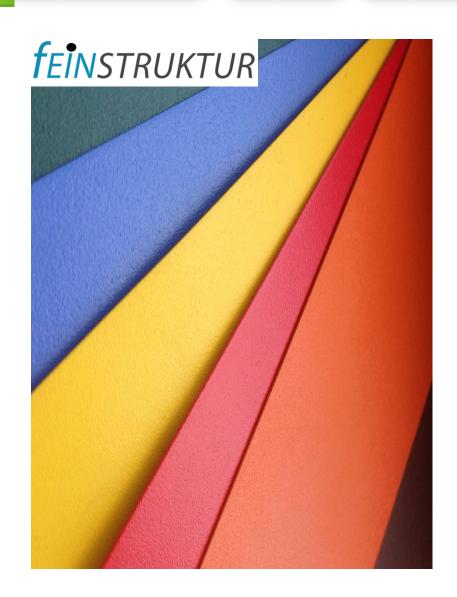
Certifications

About us

<u>Home</u>



Finishes





Products

Services

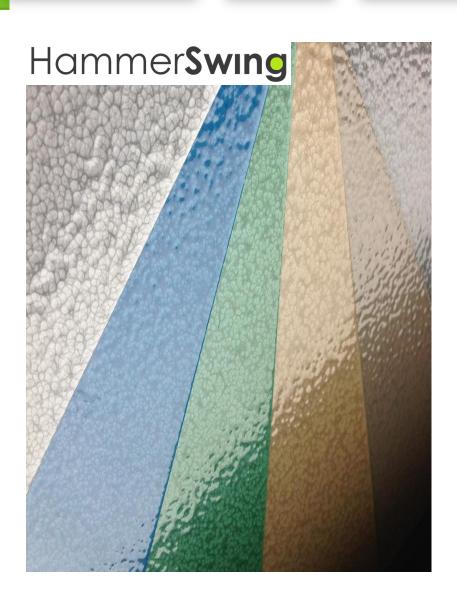
Certifications

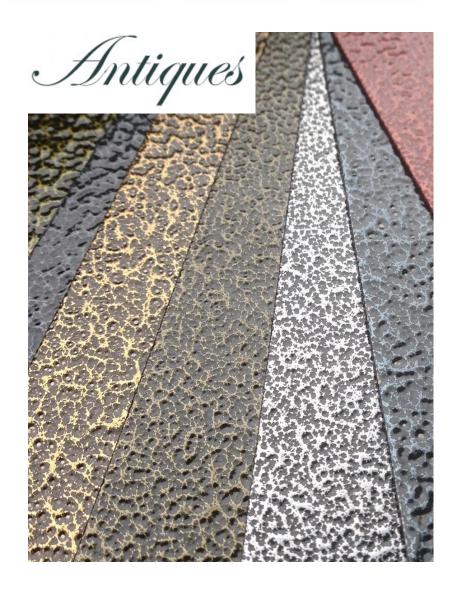
About us

<u>Home</u>



Finishes





Products

Services

Certifications

About us

<u>Home</u>



Finishes





Products

Services

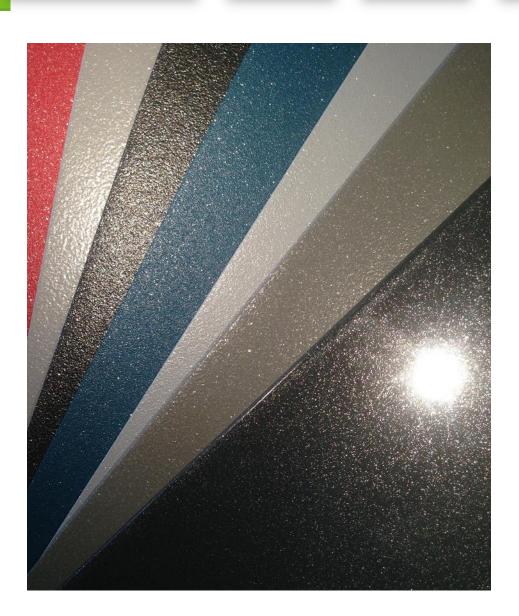
Certifications

About us

<u>Home</u>



Finishes













HEP Hybrid EP

PEI Industrial PE

EPX Epoxy systems

Antimicrobial Finishes

SPECIALTIES



LC - 160 **Low T Curing**

FC - 150 **Fast T Curing**

UC - 140 **Ultra Low T Curing** **HEP Hybrid EP**

PEI Industrial PE

EPX Epoxy systems





HEP Hybrid EP



the Power of Colour



More than 400 products available for immediate delivery. 2000 sqm Logistic Dept. equipped with a bar code scanning system to improve accuracy and ensure Fast and Accurate Loading Service



400+







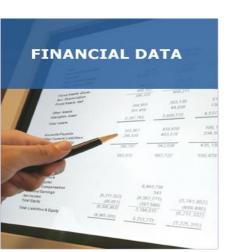




who



the Power of Colour





RIPOL Group at a glance

Legal Ownership: Di Segni family

Establishment: Y2000

Covered area: 10.000 sqm
Manufacturing area: 7.000 sqm
Warehouse: 2000 sqm

Offices and Laboratory: 900 sqm Uncovered area: 5.000 sqm

Manufacturing locations: Milan –Italy

Manufacturing capacity: 8.000 ton/y

Employees: 55

Group Turnover: 18 mio € apx (Y2015)

Domestic Sales: 50 % International Sales: 50 %

International subsidiaries: 5

International Dealers: EU & Overseas









Applications/Markets Certifications About us **Home Products** Services the Power of Colour





An International Attitude

RIPOL has a vocation towards internationalization built into its own DNA. Since its creation RIPOL has set itself the goal of becoming a reference point for excellence in the European Powder Coatings market and has consequently made the necessary investments in terms of human and technological resources in order to reach the target set.





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Operational HQS:

Via Donatori del Sangue, 25/A I-20010 S. Stefano Ticino -Milan GPS: 45°29'04.5"N 8°54'31.4"E Ph +39029748411

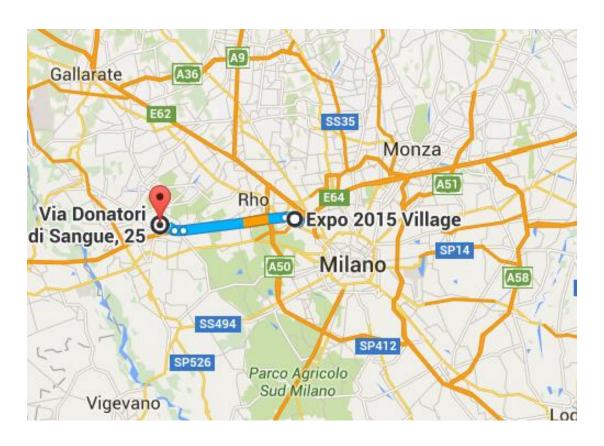
Fax +390297484170

international@ripol.com www.ripol.com

Legal HQS

Foro Buonaparte 67 20121 Milan

15 min de Milano Malpensa International Airport 30 min de Milano City Centre –A4 Autoroute Milan-Turin – exit ARLUNO 10 min de Milano **EXPO Village** / RHO-Fiera Metro Ligne MM 1 -RED









- 2000 Establishment of RIPOL SpA
- 2001 Sales start-up Italian mkt
- 2003 RIPOL starts expanding in international markets

 Company obtains ISO 9001 QUALICOAT and GSB Certifications
 Installation of a new extrusion line
- 2005 Investments in Mfg area new equipment for metallic powders Strategic cooperation agreement in Russian Federation
- 2006 New investment in the ERP system

 New investment in Human Resources

 Continues domestic and int. Sales expansion
- 2007 Installation of a new extrusion line in the Mfg area
- 2008 Implementation of Stock assortment
 Architectural Matt and Semi gloss products
 Company obtain GSB Master Certification



- 2009 Establishment of RIPOL Deutschland
- 2010 Establishment of RIPOL Switzerland
- 2011 Group Record Sales
 Significant sales expansion in International mkts
 Establishment of RIPOL Espana
- 2012 Establishment of RIPOL Poland Establishment of RIPOL France
- 2014 Replacement of enterprise-resource planning (ERP) system
- 2015 Celebrating the 15° Anniversary
 Installation of a New Manufacturing Line



Licenses & Certifications













DNV BUSINESS ASSURANCE

MANAGEMENT SYSTEM CERTIFICATE

Certificato No. / Certificate No. CERT-12107-2003-AQ-MIL-SINCERT

Si attesta che / This is to certify that

RIPOL S.p.A.

Via Donatori del Sangue, 25/a - 20010 Santo Stefano Ticino (MI) - Italy (Riferimento al Supplemento "A" / Refer to Supplement "A")

> è conforme ai requisiti della norma per i sistemi di gestione: has been found to conform to the management system standard:

UNI EN ISO 9001:2008 (ISO 9001:2008)

Ouesta Certificazione è valida per il seguente campo applicativo: This Certificate is valid for the following product or service ranges:

Progettazione, ricerca e sviluppo, produzione e commercializzazione di rivestimenti in polvere termoindurenti (Settore EA: 12)

Design, research and development, production and sale of thermosetting powder coatings (Sector EA: 12)

Data Prima Emissione/Initial Certification Date:

2003-04-03

Il Certificato è valido fino al: This Certificate is valid until:

2015-03-04

Lead Auditor

L'audit è stato eseguito sotto la supervisione di/ The audit has been performed under the supervision of

Luisa Colombo

ACCREDIA T

Zeno Beltrami

Management Representative

Luogo e Data/Place and Date:

Per l'Organismo di Certificazione

For the Certification Body.

Agrate Brianza (MB), 2014-03-10

La validità del presente Certificato è subordinata al rispetto delle condizioni contenute nel Contratto di Certificazioni Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.



DNV BUSINESS ASSURANCE

MANAGEMENT SYSTEM CERTIFICATE

Supplemento "A" / Supplement "A" to Certificate No. CERT-12107-2003-AQ-MIL-SINCERT

Le sedi e i servizi erogati da R. Sociale inclusi nella Certificazione sono i seguenti. The units and services supplied by R. Sociale included in the Certification are the following

Bauohfring 2/1 - D-71732 Tamm - Germania Via Carlo Cattaneo 21 - 6906 Lugano (CH) - Svizzera Avdu. Les Gurrigues, 46 - E-08820 El Prut de Llobregut - Spugnu

Commercializzazione di rivestimenti in polvere termoindurenti Sale of thermosetting powder coatings

Data Prima Emissione/Initial Certification Date

2003-04-03

Il Certificato è valido fino al: This Certificate is valid until: 2015-03-04

L'audit è stato eseguito sotto la supervisione di The audit has been performed under the supervision of Luisa Colombo

Lead Auditor

ACCREDIA !

800 Nº00 A PRO Nº00 B 80A Nº00 D SEI Nº00 C 808 Nº00 F PEN Nº00 I

Agrate Brianza (MB), 2014-03-10 Per l'Organismo di Certificazione. For the Certification Body:

Luogo e Data/Place and Date:

Zeno Beltrami

Management Representative

La validità del presente Certificato è subordinata al rispetto delle condizioni contenute nel Contratto di Certificazione. Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid.











APPROVAL

for coating materials

The Association for Quality Controls in the Lacquering, Painting and Coating industry, abbreviated to QUALICOAT, hereby grants an approval based on the test results

Report submitted by (Testing laboratory): QUALITAL Date of Issue of the Approval: 16.03.2004 31.12.2016 Approval valid until: System name: Serie 56L Valid only for Sublimation Gloss Category: Structured Finished Extension for P/P: Metallic colours approved 3022, 8007 Banned colours: RIPOL, Milano Manufactured by the company: Place: IT - 20123 Mlano

This product may be described and labelled as follows

Product tested and approved for the quality mark



and may therefore be offered to all companies holding the quality label for paint, lacquer and powder coatings on aluminium for architectural applications

Zurich, 17 December 2015 QUALICOAT

P-No:

Mohammed C. Panam

President

General Secretary

QUALICOAT , P.O. Box 1507, CH-8027 Zurich - Todistresse 47, 80027 Zurich (Switzerland)
Phone: ++41 43 305 00 70770 - Fisc: ++41 43 305 00 98 - E-Mail: Info@qualicoat.net - Internet www.qualicoat.net

APPROVAL

for coating materials

The Association for Quality Controls in the Lacquering, Painting and Coating Industry, abbreviated to QUALICOAT, hereby grants an approval based on the test results

Report submitted by (Testing laboratory): Date of issue of the Approval: 02.07.2002 Approval valid until: 31.12.2016 Serie 58L System name: Valid only for Sublimation No Gloss Category: Structured Finished: Extension for P/P: Metallic colours approved 3022 Banned colours RIPOL Milano Manufactured by the company Place: IT - 20123 Milano P-No: P.0433

This product may be described and labelled as follows

Product tested and approved for the quality mark



and may therefore be offered to all companies holding the quality label for paint, lacquer and powder

Zurich, 17 December 2015

QUALICOAT

M.C. tanam

Mohammed C. Panam Josef Schoppig President General Secretary

QUALICOAT , P.O. Box 1507, CH-8027 Zurich - Tödistrasse 47, 80027 Zurich (Switzerland)
Phone: ++41 43 305 09 70/79 - Fax: ++41 43 305 09 98 - E-Mail: info@qualicoat.net - Internet: www.qualicoat.net

APPROVAL

for coating materials

The Association for Quality Controls in the Lacquering, Painting and Coating industry, abbreviated to QUALICOAT, hereby grants an approval based on the test results

QUALITAL Report submitted by (Testing laboratory): Date of issue of the Approval: 16.03.2004 Approval valid until: 31.12.2016 System name: Serie 52L Valid only for Sublimation: Gloss Category: Class: Structured Finished: Extension for P/P: No Metallic colours approved No 3022 Banned colours: Manufactured by the company RIPOL, Milano IT - 20123 Milano Place: P-No:

This product may be described and labelled as follows

Product tested and approved for the quality mark



and may therefore be offered to all companies holding the quality label for paint, lacquer and powder coatings on aluminium for architectural applications

Zurich, 17 December 2015 QUALICOAT

Mohammed C. Panam Josef Schoppig President General Secretary

QUALICOAT, P.O. Box 1507, CH-8027 Zurich - Todistresse 47, 80027 Zurich (Switzerland)
Phone: ++41 43 305 09 7079 - Fax: ++41 43 305 09 98 - E-Mail: Info@qualicoat.net - Internet www.qualicoat.net

APPROVAL

for coating materials

The Association for Quality Controls in the Lacquering, Painting and Coating Industry, abbreviated to QUALICOAT, hereby grants an approval based on the test results

Report submitted by (Testing laboratory): QUALITAL Date of issue of the Approval: 20.09.2005 Approval valid until: 31.12.2016 Serie 55R System name: Valid only for Sublimation No Gloss Category: Structured Finished: Yes (Textured) Extension for P/P-Metallic colours approved: 2004, 3022 Banned colours Manufactured by the company RIPOL, Milano IT - 20123 Milano P-0655

This product may be described and labelled as follows

Product tested and approved for the quality mark



and may therefore be offered to all companies holding the quality label for paint, lacquer and powder coatings on aluminium for architectural applications

Zurich, 17 December 2015

QUALICOAT

M.C. tanam

Josef Schoppig Mohammed C. Panam President General Secretary

QUALICOAT , P.O. Box 1507, CH-8027 Zurich - Tödistrasse 47, 80027 Zurich (Switzerland)
Phone: ++41 43 305 99 70/79 - Fax: ++41 43 305 09 98 - E-Mail: info@qualicoat.net - Internet: www.qualicoat.net

<u>Applications/Markets</u>

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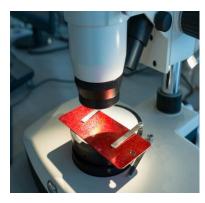
Certifications

About us

<u>Home</u>











TDS & MSDS
Colorimetric
Batch QC
PSD
SST
QUV
Q-SUN
On demand







Product Codification



Products

Services

Certifications

About us

Home

Technical Services

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Safety Data Sheet 58LB1500730 - BLUE RAL 5007



MSDS

Safety Data Sheet dated 31/7/2015, version 1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Mixture identification

Trade name: BLUE RAL 5007 58LB1500730 Trade code:

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.3. Details of the supplier of the safety data sheet

RIPOL S.r.I. - Via Donatori del sangue, 25/A

20010 Santo Stefano Ticino (MI) - Italy

Tel. (+39) 02 9748411

Fax (+39) 02 97484170

Competent person responsible for the safety data sheet:

info@ripol.com 1.4. Emergency telephone number

Tel. (+39) 02 9748411

Lun - ven 8.30 - 12.30 / 14.00 - 17.30

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

EC regulation criteria 1272/2008 (CLP)

The product is not classified as dangerous according to Regulation EC 1272/2008 (CLP).

Adverse physicochemical, human health and environmental effects

No other hazards 2.2. Label elements

The product is not classified as dangerous according to Regulation EC 1272/2008 (CLP). Symbols:

None

Hazard statements:

Precautionary statements:

None

Special Provisions

Special provisions according to Annex XVII of REACH and subsequent amendments:

2.3. Other hazards vPvB Substances: None - PBT Substances: None

Other Hazards:

No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

3.2. Mixtures

Hazardous components within the meaning of the CLP regulation and related classification:

Safety Data Sheet dated 31/7/2015, version 1

Page n. 1 of 7



TECHNICAL DATA SHEET SERIES 58L

Edition 1 date 01/15, 2013

Mod.73-5801 / ENG

Edition Article 5 - Edition date 25/09/2014

Part. No.: 58Iw1901630 WHITE RAL 9016 - SMOOTH - GLOSSY QUALICOAT Approval P0433, Cat. 3 and GSB Approval 157a Approvals:

TGIC-free polyester Chemical composition

Storage: The product has a shelf life of 36 months if stored in its original packing in a fresh and dry environment at a

temperature below 30 °C.

15-25 minutes at 180 °C 12-18 minutes at 190 °C 10-12 minutes at 200 °C (actual temperature of the Cure conditions:

Application method corona electrostatic guns or tribo electric guns.

Application range: for exterior use.

Particle size analysis: It is suitable for electrostatic applications

Optimum film thickness: 60-80 µm

Specific weight: 1,64 Kg/dm3 ± 0,05

10,16 m2 / Kg (60 µm) Product performance:

Pre-treatment: Ferrous substrates, zinc coated steel: Salt of zinc phosphate coating

Chrome-free or chromate conversion coatings

Test Thickness: $65 \pm 10 \, \mu m$ UNI EN ISO 2360:2004

Gloss: 85 ± 5 (60° - 15'@180°C) UNI EN ISO 2813:2002 Adhesion: GT0 (equivalent to 5B according to ASTM D 3359) UNI EN ISO 2409:2007 UNI 10782:1999 Pencil hardness: Impact Test: ≥ 2.5 Nm UNI EN ISO 6272-2:2006 Bending: 5 mm UNI EN ISO 6860:2006 Frichsen ≥ 5 mm (no detachments, no cracks) UNI EN ISO 1520:2007 UNI EN ISO 2815:2005 ≥ 80 Hardness Buchholz 1000 h (≤ 3 mm) UNI EN ISO 9227:2006 Salt spray resistance: Salt spray resistance (Acetic): 1000 h (≤ 4 mm) UNI EN ISO 9227:2008 Q-UVA (340 nm): 200 h (loss of glossiness < 50%) UNI EN ISO 11507:2007 Humidity resistance: 1000 h UNI EN ISO 6270:2001 Kesternich corrosion: > 24 cycles (≤ 1 mm) UNI EN ISO 3231:1999

Acid / alkali resistance: Resistant to diluted acids, alkali, and oils at normal temperatures

The information reported herein is not exhaustive. Use of the product for purposes or uses other than those it was designed for, without prior written authorization of RIPOL S.p.A., is done solely under the user's responsibility. RIPOL S.p.A. takes all care to verify that all advice and directives concerning the product indicated in the relevant reports or verbally conveyed by its personnel are correct and applicable. Nevertheless, RIPOL S.p.A. is not responsible for the conditions of the substrate or of numerous other factors that may affect the final performance of the product. Without a prior written agreement, we cannot accept any responsibility on any of our products for damage or loss (including injury or death) due to improper use of the product. All information contained in the report is subject to future modifications consequent to continuous development of our expertise and to our policy of constantly improving our products and therefore is not binding.



Products

Services

Certifications

About us

Home

Technical Services

TDS & MSDS Colorimetric Batch QC PSD SST QUV **Q-SUN** On demand



CIE L*a*b* differenza colore

03-May-11 15:52

Geometria misur camp %R SAV SCI UV Inc

%R SAV SCI UV Inc

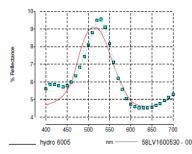
Condizioni illuminante/osservatore

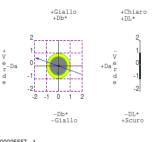
1) D65 10 Deg 2) A 10 Deg

3)	F02 10 Deg

	III/OSS	L^	a [*]	b^	C.	n
Nome standard: 6005	1		-13.60 -11.49	4.55		161.52 173.62
	2 3	31.04	-9.79	3.90		158.31
Nome campione: 58LV1600530 - 000002555 Data misuraz campione)9-Mar-11 Ora misuraz campione 10:49:48	57 - 1 2 3	30.82	-13.62 -12.42 -10.35	3.99 1.19 2.85	12.48	163.69 174.53 164.61

III/oss	DL*	Da*	Db*	DC*	DH*	DE*
D65 10 Deg	0.11	-0.02	-0.56	-0.15	0.54	0.57
A 10 Deg	0.08	-0.94	-0.09	0.92	0.19	0.95
F02 10 Deg	0.11	-0.56	-1.05	0.20	1.17	1.19





Colorimetric



Products

Services

Certifications

About us

Home

Technical Services

TDS & MSDS Colorimetric **Batch QC** PSD SST **QUV Q-SUN** On demand





Control plan



COMPANY WITH **QUALITY SYSTEM CERTIFIED BY DNV** = ISO 9001 =

3691 Report No.

Part No. 58LW1901630 WHITE RAL 9016 Description Surface finish SMOOTH - GLOSSY Batch No. 0000038654 Test date 2/11/2015



2238 Revision index

Substrate steel panel 60 x 140 x 0.5 mm

aluminum panel 60 x 140 x 0,5 mm (Alloy 5005 - H24)

(only for the series 52L, 55R, 56L e 58L)

Cure conditions (substrate) 15' 180°C Film thickness 60 μm ÷ 80 μm

BATCH TEST RESULTS

Characteristics	Min.	Max.	Test Value	Unit	Method
Average particle size analysis			34.1	μm	IO 75-11
Gloss level check at 60°	80	90	88	GU	UNI EN ISO 2813:2002
Colour check			OK		Visivo
Surface finish check			OK		Visivo
Impact Test (>= 2.5)			OK	Nm	UNI EN ISO 6272-2:2006
External packaging integrity			OK		Visivo
Presence of labels			OK		Visivo



Analisi granulometrica Particle Size analysis

Analisi effettuata con Sympatec HELOS (H1868) - RODOS, R4: 0.5/1.8...350µm 2012-06-15, 19:58:43

Vernice in polvere

WARNING: Coarse particles probably exceeding the measuring range.

prodotto: Vernice in polvere

disp. meth.: RIPOL 2012 M 03

Codice:: 19LW1901040

density: 1,00 g/cm3, shape factor: 1,00

evaluation: WINDOX 5.2.1.0, HRLD revalidation

reference measurement: 06-15 13:26:08

Copt = 5,06 % identificazione polvere:

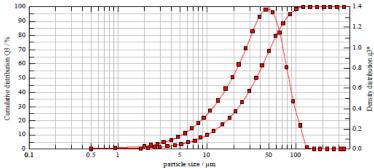
trigger condition: Condizioni standard ripol time base: 200,00 ms

start: c.opt >= 2%

valid: 2% <= c.opt <= 25%

Lotto:: Scatola nº: 20

stop: 10s meas.time or 15s real time Mulino:: 1



cumulative distribution

$x_0/\mu m$	Q3/%	x ₀ /µm	Q3/%	x ₀ /µm	Q3/%	x ₀ /μm	Q3/%
1,80	0,35	7,40	5,93	30,00	40,56	122,00	99,90
2,20	0,56	8,60	7,56	36,00	49,74	146,00	100,00
2,60	0,81	10,00	9,56	42,00	58,42	174,00	100,00
3,00	1,09	12,00	12,52	50,00	68,80	206,00	100,00
3,60	1,59	15,00	17,10	60,00	79,42	246,00	100,00
4,40	2,35	18,00	21,77	72,00	88,48	294,00	100,00
5,20	3,21	21,00	26,48	86,00	94,69	350,00	100,00
6,20	4,39	25,00	32,75	102,00	98,11		

$x_{10} = 10,30 \mu m$	$x_{50} = 36,18 \mu m$	$x_{90} = 75,43 \mu m$	SMD = $20,56 \mu m$	$VMD = 40,09 \mu m$
$x_{16} = 14,28 \mu m$	$x_{84} = 66,07 \mu m$	$x_{99} = 111,96 \mu m$	$S_V = 0.29 \text{ m}^2/\text{cm}^2$	$S_m = 2918,85 \text{ cm}^2/\text{g}$

Granulometria media /Averrage particle size (X50) --> 36,18 μm

RESIDUI TEORICI --> Setaccio 20 µm = 75,09 % Setaccio 40 µm = 44,47 % Setaccio 90 µm = 4,46 %



Products

<u>Services</u>

Certifications

About us

<u>Home</u>

Technical Services

TDS & MSDS
Colorimetric
Batch QC
PSD
SST
QUV
Q-SUN
On demand









QUV- Accelerated Weathering Tester



Q-SUN
Xenon Test Chamber



Products

<u>Services</u>

Certifications

About us

<u>Home</u>

Technical Services

TDS & MSDS
Colorimetric
Batch QC
PSD
SST
QUV
Q-SUN
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Oven Data Logger Coating thickness gauge

Gloss measurement

Products

Services

Certifications

About us

<u>Home</u>

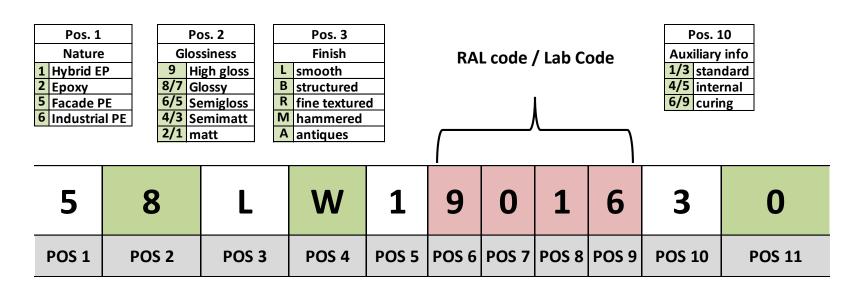




Products Codification

How To Read Alphanumeric 11 Digits Barcodes

ServiceS



Pos. 4					
Pos. 4					
Color					
orange					
blue					
grey					
brown					
black					
purple					
red					
ivory					
clear					
green					
white					
yellow					

	Pos. 5					
	Effect					
1	normal					
2	metallic					
3	clear					
4	clear met					
5	marble					
6	marble-met					
7	bonded					

	Pos. 11						
	Packaging						
0	25 kg Carton Box						
2	20 kg Carton Box						
4	500 KG BIG Carton -free powder						
5	500 KG Textile Big Bag						
6	500 KG Big Carton +25 kg sacks						
7	500 KG Big Carton +20 kg sacks						

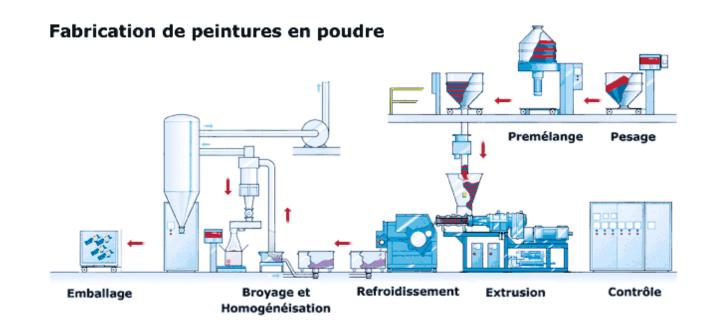




State-of-the-art equipment and Integrated ERP system



Bar Coding (No papers)











Technology - State-of-the-art equipment and ERP

Since from the beginning RIPOL invested in ultra-modern machine technology installing state-of-the-art manufacturing equipment integrated by an **Integrated ERP system** which controls all phases of manufacturing from the acceptance of raw materials to the shipment of finished goods.

The integrated **ERP System** environment allows direct sharing of engineering and manufacturing data through an automated process. The Integrated ERP System guarantees that all departments involved in the product development and manufacturing cycle have access to current and accurate product data. The Integrated ERP System reduces duplication of data, speeds product development cycles and improves new product turnaround time, enhancing the overall process in getting products to market and ultimately sustaining a company's competitive position.











Corporate Quality Policy

Our comprehensive QCS Quality Control Systems ensure products meet or exceed customer requirements and it covers multiple departments in our organization as well as external groups such as vendors, distributors and most importantly, customers. Quality control covers all phase of the product life cycle (PLC) including design, development, production, distribution, servicing and documentation. It includes regulars on raw material quality, production plant procedures, inspection, management and service processes. Raw materials are ordered according to MRP logic so that company profitability is maximized and stock levels reduced to the minimum. Raw materials are labelled with a bar code and subjected to severe quality controls for acceptance. The operators pick up the raw materials by using a radio frequency terminal. Each weighing station is fitted with interconnected PC, bar code reader, label printer and scales. The planned orders appear directly on each terminal and are filled according to the preset sequence. All these procedures are designed to assure the highest level of quality, safety and excellent batch-to-batch consistency of the finished product. Ongoing investments in our facilities, infrastructure and equipment allow us to further improve our performance.







1880 Kawai-cho, Jwakura-shi, Alchi-keu 482-8810, JAPAN — TEL:+81-587-37-3251 / FAX:+81-587-37-3230

2 May 2012

Messrs, Sides S.p.A. - Ripol

ISHIZUKA GLASS CO., LTD. Advanced Glass Company

REPORT ON ANTI-MICROBIAL TEST RESULT

1. Sample: Polyester / Epoxy Powder Coated Plates

No.	Sample	
1,	19L Blank-F	I (Epoxypolyester)
2.	19L (3-H)	(Epoxypolycster)
3.	19L (5-H)	(Epoxypolyester)

2. Outline of test:

The test was executed in according with "JIS Z 2801-2010."

<Bacteria used for test>

Escherichia coli NBRC3972 Staphylococcus aureus NBRC12732

3. Test result:

Table 1, Test result of Anti-microbial effect against Escherichia coli

		Nui	uber of living bact	Antimicrobial		
	Sample	At beginning (Per cm²)	After 24 hours (Per piece)	After 24 hours (Per cm²)	activity value against Blank	Reduction %
1.	19L Blank-H	1.1 × 10 ⁴	2,3×10 ⁷	1.4 ×10 ⁶		
2,	19L (3-H)	1.1 × 10 ⁴	<1×10 ²	<6.3	>5.4	>99,999
3.	19L (5-H)	1.1 × 10 ⁴	<1 ×10 ²	<6.3	>5.4	>99.999
	Control (Film only)	1.1 × 10 ³	4.2 × 10 ⁷	2,6 ×10 ⁶		

ISHIZUKA GLASS Co., Ltd.

1880 Kawal-cho, Iwakura-shi, Aichi-ken 482-8510, JAPAN TEL;+81-587-37-3251 / FAX;+81-587-37-3230

Table 2. Test result of Anti-microbial effect against Staphylococcus aureus

		N	umber of living ba	Antimierobial	Reduction %	
	Sample At beginn (Per ca		After 24 hours (Per piece)	After 24 hours (Per cm²)		
1.	19L Blank-H	1.5 × 10 ⁴	2.0×10 ⁶	1.3×10 ⁵	*****	*****
2.	19L (3-H)	1.5 × 10 ⁴	<1×10 ²	<6.3	>4,4	>99,995
3.	19L (5-H)	1.5 × 10 ⁴	<1×10 ²	<6.3	>4.4	>99.995
	Control (Film only)	1.5 × 10 ⁴	1.0 × 10 ⁶	6.3×10 ⁴		

4. Consideration:

Sample 2 and 3 showed antimicrobial efficacy against both *Escherichia coli* and *Staphylococcus aureus* as its activity value exceeded the standard value of 2.0, which means this application has a >99% bacterial reduction rate.

ISHIZUKA GLASS CO,. LTD.

Tomoshige Hasegawa
For MANAGER

RIPOL Series 1
Antimicrobial Test
Result according to
JIS Z-2801-2010





the Power of Colour

Applications/Markets

Products

Services

Certifications

About us

<u>Home</u>





ISHIZUKA GLASS Co., Ltd.

1880 Kawal-cho, Iwakura-shi, Aichi ken 482-8510, JAPAN TEL:+81-587-37-3251 / FAX:+81-587-37-3230

6 August 2012

Messrs, Sides S.p.A. - Ripol

ISHIZUKA GLASS CO., LTD. Advanced Glass Company

REPORT ON ANTI-MICROBIAL TEST RESULT

1. Sample: Polyester Coated Plates

No.	Sample	
1.	58L Blank P White	
2.	58L 6-P White	
3.	58L 8-P White	
4.	58L Blank P Grey	
5.	58L 6-P Grey	
6.	58L 8-P Grey	

2. Outline of test:

The test was executed in according with "JIS Z 2801-2010."

<Bacteria used for test>

Escherichia coli NBRC3972 Staphylococcus aureus NBRC12732

3. Test result:

Table 1. Test result of Anti-microbial effect against Escherichia coli

Sample		Number of living bacteria				
		At beginning (Per cm ²)	After 24 hours (Per piece)	After 24 hours (Per cm²)	Antimicrobial activity value against Blank	Reduction %
1.	58L Blank P White	1.2×10^4	3.9×10^{7}	4.3 ×10 ⁶		reare
2,	58L 6-P White	1.2 × 10 ⁴	<1×10 ²	<1.1 ×10	>5.5	>99,9997
3,	58L 8-P White	1.2×10^4	<1 ×10 ²	<1.1 ×10	>5.5	>99,9997
4.	58L Blank P Grey	1.2×10^4	1.0×10^{7}	1.1 ×10 ⁶		
5.	58L 6-P Grey	1.2×10^4	1.0 ×10 ⁷	1,1×10 ⁶	0	0
6.	58L 8-P Grey	1.2×10^4	<1 ×10 ²	<1,1 ×10	>5.0	>99,999
	Control (Film only)	1.2×10^4	1.2 × 10 ⁷	1.3 ×10 ⁶		

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Table 2. Test result of Anti-microbial effect against Staphylococcus aureus

Sample		Number of living bacteria			Authofoschist	
		At beginning (Per cm²)	After 24 hours (Per piece)	After 24 hours (Per cm²)	Antimicrobial activity value against Blank	Reduction %
1.	58L Blank P White	1.4 × 10 ⁴	3.0×10^{5}	3.3×10 ⁻¹		
2.	58L 6-P White	1.4×10^{4}	<1 ×10 ²	<1.1 ×10	>3.4	>99.96
3.	58L 8-P White	1.4 × 10 ⁴	<1 ×10 ²	<1.1×10	>3.4	>99,96
4.	58L Blank P Grey	1.4 × 10 ⁴	3.2×10^{5}	3.6×10 ^d		
5.	58L 6-P Grey	1.4×10^4	2,6×10 ⁴	2.9×10 ³	1,1	91
6.	58L 8-P Grey	1.4 × 10 ⁴	<1 ×10 ²	<1.1×10	>3.5	>99.96
	Control (Film only)	1.4×10^4	7.9×10^{5}	8.8 ×10 ⁴		

4. Consideration:

Regarding white color sample, both Sample 2 and 3 showed antimicrobial efficacy against both Escherichia coli and Staphylacoccus aureus as its activity value exceeded the standard value of 2.0, which means this application has a >99% bacterial reduction rate. On the other hand, Grey sample of Sample 6 showed autimicrobial efficacy against both bacteria as its activity value exceeded the standard value of 2.0, which means the application has a >99% bacterial reduction rate,

Antimicrobial Test Result according to JIS Z-2801-2010

RIPOL Series 5/6



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Tomoshige Hasegawa MANAGER