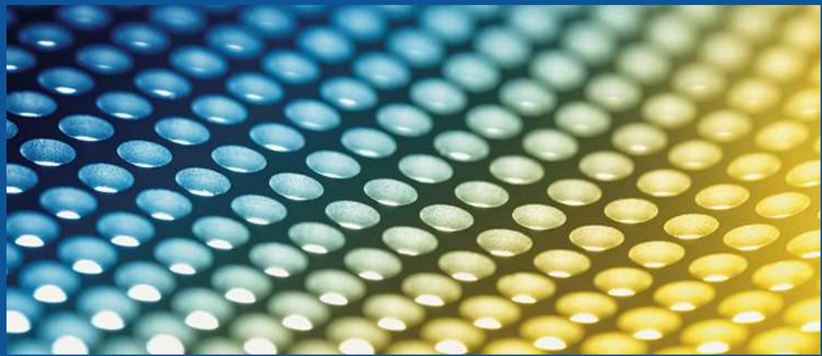
‘Sense the Difference’



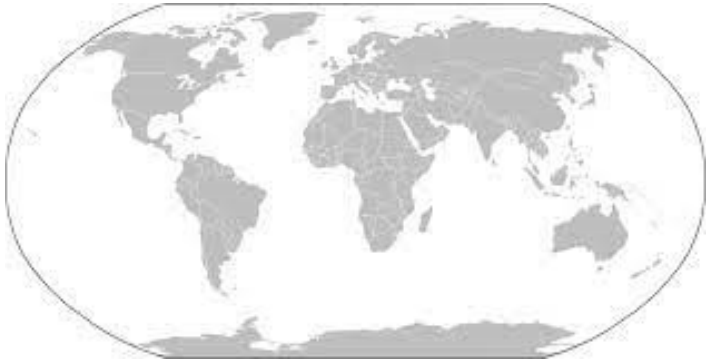
Aluprint 3R

THINKING OF TOMORROW

omya.com

ALU FINISHING - Speciality Chemicals Distribution

“Omya offers versatile solutions beyond calcium carbonate….”



DESCRIPTION

Aluprint® 3R

Aluprint® 3R is a specially formulated printing ink series that contains dyestuffs that are easily adsorbed into anodised aluminium. By combining the physical properties of anodized aluminium with the Aluprint® printing inks, simple one-color printed labels and up-to multi-coloured nameplates can be produced.

SITUATION

Production & Distribution

- Omya is responsible for the production and global distribution of Clariant's Aluprint 3R inks
- The inks are toll manufactured by a 3rd party company in specialized mixing vessels
- Aluprint is a mixture of solvent dye, thickening agent & a blend of organic solvents

Advantages

The coloured surface is:

- PERMANENT
- DURABLE
- ABRASION RESISTANT
- WEAR RESISTANT
- LIGHT FAST*

This technique is not subject to the constraints which affect items where the colour is present as a surface deposit.

* Compared with traditional printing techniques. For Indoor use only, not suitable for architectural applications.

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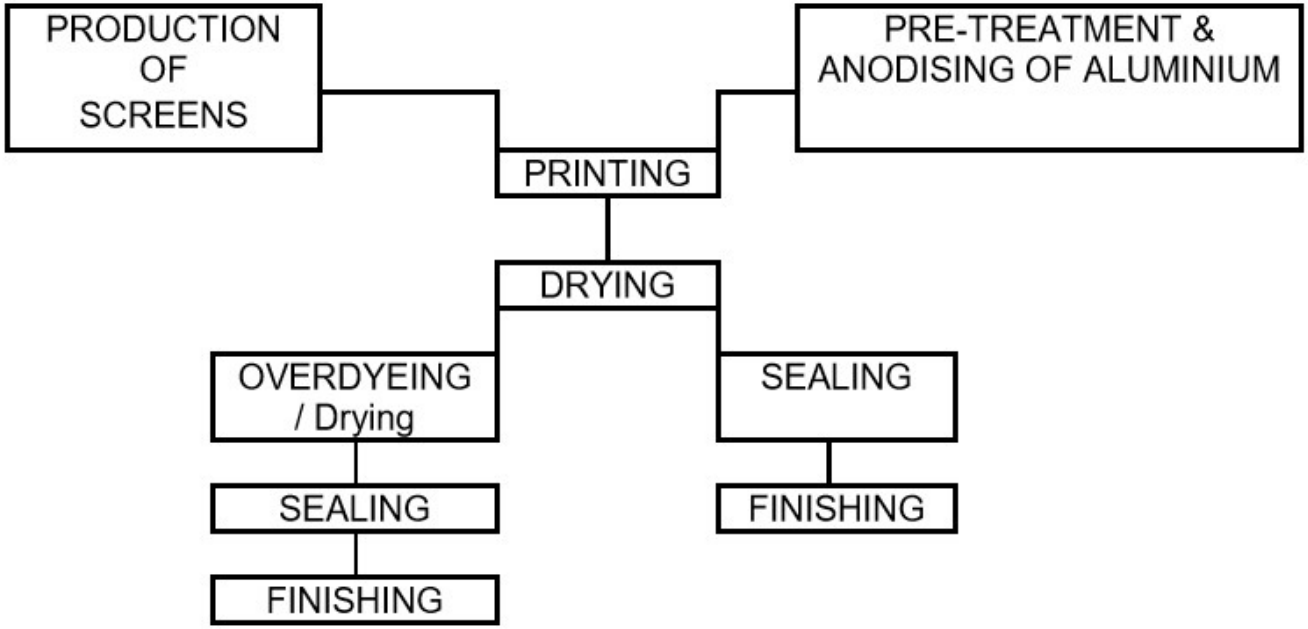
TECHNICAL

Process Outline



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PROCESS

Preparation of Aluminium

Pre-cleaning

Degrease in a solution of Anodal Clean BFO-2 (or similar) liquid at 50-60^{o}C
Caustic etch if a matte finish required.
De-smut in a solution of Omexal Deox liquid (or similar).

Anodising

Sulphuric content	= 12.5% by volume
Current density	= 14 amps/sq.ft
Temperature	= 18-21^{o}C
Time	= 30 minutes
Film thickness achieved	= 10-12 microns

PROCESS

Preparation of Aluminium

Rinsing

Rinse in cold, clean running water for approximately 3 - 5 minutes between all operations.

Drying

Careful and even drying of the anodic film is necessary to ensure level and even printing. Items should be dried in a dust free environment at a temperature of 20-25°C. A warm air fan assists in this drying stage.

Alternatively, **Omexal® Printano Matt 23** can be used. These are anodised aluminium sheets that have been developed for printing applications, especially for sub-anodised printing. Ask your representative for further information.

PROCESS

Production of screens

- Synthetic gauze is generally selected for use with Aluprint® (polyamide or polyester). As a guide, screen mesh with 80-140 threads per square centimetre can be used depending upon the quality needed of the finished product. However, mesh containing 120 threads per square centimetre is that most commonly found. In general, polyester exhibits greater stability of dimension than polyamide. Stainless steel mesh is sometimes used but tends to be more expensive. Frames can be made from several materials but iron, aluminium and wood are those most commonly found.

- There are several types of photo films and photo emulsions. Specific application conditions and suitability for use with Aluprint® should be obtained from the supplier.

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PROCESS

Printing

Normal screen printing techniques are used.

The hardness and shape of the squeegee is important in determining the quality of print. Clear cut prints are more easily obtainable using only one squeegee stroke.

Drying

Before any further operations can take place, any printed components must be dried.

Two methods can be used:

Air Drying: 1-2 hours at room temperature is generally sufficient. Deeper shades can be obtained using this method than using following method:

Force Drying: Drying can be accelerated by using a warm air fan at a maximum temperature of 50°C. It is important to note that different drying conditions may lead to varying depths of shade and this should considered when using mixtures of different Aluprint inks.

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Sealing

Usual sealing methods should be used:

- Anodal SH-1 liquid solution 2-3ml/l at >96°C, pH 5.5 for 2.5 minutes per micron of film (12µm=30 minutes)
- 20 g/l Sealing Salt AS liquid or 5g/l Sealing Salt ASL powder for 2.5 minutes per micron of film at >96°C
- 20 g/l Sealing Salt AS liquid or 5g/l ASL powder for 5 minutes at 75°C and then complete sealing in an Anodal SH-1 liquid solution 2-3ml/l at >96°C. Total seal time equals 2.5 minutes per micron of film

Note: Cold sealing should not be used in conjunction with Aluprints as the ink acts as a barrier to the cold seal process.

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Cleaning

The following solvents can be used for the removal of Aluprint®:

- ALUPRINT® DILUENT
- ETHANOL
- ISOPROPYL ALCOHOL
- METHYL ETHYLKETONE
- ACETONE

As local environmental regulations apply, we strongly recommend to crosscheck with your local authorities about storage, usage and handling of any volatile organic compounds.

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Properties

ALUPRINT® 3R PRINTING INKS

These inks are hydrophobic (dislike of aqueous solution). After screen printing and drying, the hydrophobic nature of the residue makes it possible to over-dye with any of the dye solutions prepared from the Sanodal®, Sanodure® and Sanodye® dyes. After finishing, this dried residue has to be cleaned away with suitable organic solvent or Aluprint® Diluent Liquid.

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Properties

ALUPRINT® REDUCER 3R

Aluprint® Reducer 3R is the uncoloured printing ink; the finished coloured ink minus the dyestuff. It can be mixed with the appropriate coloured ink to reduce its colour strength and thereby produce pale, pastel shades without altering any other process conditions. Aluprint® Reducer 3R, because of its hydrophobic nature, can be used as a resist in its own right.

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Properties

ALUPRINT® DILUENT LIQUID

Aluprint® Diluent liquid is a combination of the same solvents used in the Aluprint® 3R printing inks.

This makes it compatible with these inks and is therefore commonly used as a diluent/thinner and as an agent for cleaning screens.

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RANGE

Aluprint

- ALUPRINT® YELLOW 3R
- ALUPRINT® RED 3R
- ALUPRINT® TURQUOISE 3R
- ALUPRINT® BLUE 3R
- ALUPRINT® BLACK 3R
- ALUPRINT® REDUCER 3R
- ALUPRINT® DILUENT LIQUID

Colourless

COMMERCIAL

Packaging

The Aluprint®3R inks are ready to use directly from the 1kg bottle and can be mixed in any ratio to produce an infinite colour range.

Aluprint Diluent is also available in larger containers.

Sales and Marketing

ALU Finishing Team

- Omya (Schweiz) AG is certified according to the Quality Management System ISO 9001
- Over 150 years of combined technical experience in surface finishing
- Local representation in all markets
- Dedicated website: *www.omya-aluminiumfinishing.com*

Logistics

LOGISTICS

Order Desk / Warehouse

- All orders processed through CSD in Oftringen, invoiced in local currency
- Centralised warehouse in Germany
- Standardised pricing matrix with rebate system
- For Europe, deliveries are DAP (Incoterms 2010), without tax.
- Outside Europe prices are calculated FCA (Incoterms 2010), orders are invoiced locally
- Express deliveries available at extra cost

Anita Boesch
Customer Service Representative

Omya (Schweiz) AG
Oftringen
Switzerland

Sustainability is the key to future success on our journey to achieving our objectives

"Using our knowledge and people to provide added value products and services from responsibly sourced materials to meet the essential needs of current and future generations“

(Omya Core Purpose)