



Lysis Technologies Ltd.

## *Label free graphics and coatings (direct ink application)*

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[www.tesoplas.com](http://www.tesoplas.com)



*One of the 100 most Innovative UK companies*

**INNOVATE2015**





## INTRODUCTION & History



Lysis Technologies Ltd.

*One of the 100 most Innovative  
UK companies*

*"A young, dynamic company providing innovative and technologically advanced, customised solutions"*

**Lysis Technologies Ltd** is a Research and Development laboratory for bespoke products such as

- *Industrial inks and coatings for all challenging substrates **including polyolefines in moulding processes***
- *Enhancing products*
- ***TESOPLAS** product range is dedicated to inks and coatings designed for the plastics moulding industry*



# INTRODUCTION & History

## Trusted Partners (LOGOS)



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## *Overview*

- *In-mould label free graphics & coatings*
  - *Application methods and tools*
- *Post-mould label-free graphics & coatings*
  - *Application methods and tools*
- *Type of inks*
- *Other Post mould surface finishing products*
- *Summary*





## *In mould label free graphics and coatings*



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- In-mould PE inks were the first ones developed (for PE surfaces).
- High quality and durability as they get integrated into the polyolefin

Branding  
Screen print



Coating  
Spraying



Painting/  
Brushing

Decorating





## *In mould label free graphics and coatings*



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- **Simple, Quick and Reliable** Method. Easy to correct with min waste.
- **Cost effective: 1lt can give 700-800 A4 graphics!**
- **Label free** simple traditional applications, flexible
- **Temperature independent**
- **User friendly, non toxic, oil based, long shelf life.**
- **Not classified as dangerous goods!**
- **Special effects (gold, silver, metallic, neon....)**
- **Multi-colouring possibilities**

[In-mould screen printing application](#)

[In mould stencil and gloss roller](#)

[In moulds spray coating](#)





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## *Application methods (in mould)*

### **Stenciling and gloss roller**

- Ink deposition vs stencil thickness
- Oil based ink only
- In mould application with gloss roller and stencil



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## *Application methods (in mould)*



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### **Screen printing**

- Used with **fine to coarse screens** (usually around 90T to 60T)
- **Detailed designs** achieved
- **Oil based ink only**
- Needs **flat surface** where artwork will be printed (curved ones also possible but very challenging)



[In-mould screen printing application](#)

Construction industry container cement bucket  
With screen printed logo

### **Spray coating**

- To achieve multicoloured mouldings
- Standard spraying guns
- Colour Customisation
- NO aerosol cans to be used
- **Oil based ink only**

### In mould spray coating



Automotive industry, truck roof, with in  
mould spray coating in black





## *Application methods (in mould)*



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### **Stamping (classic)**

- **Good quality** rubber stamps
  - Pads of **selected** materials
  - **Detailed designs** achieved
  - Only oil based ink
- 
- Needs **flat surface** where artwork will be printed
  - Thin deposition of ink might affect final finish (e.g. opacity, contrast e.g )



### **Stamping on curved moulds**

- TELOS stamps (can be either Curved or flat...)
- Roller stamps
- For mono-directional curved surfaces
- Thin deposition of ink might affect final finish (e.g. opacity, contrast e.g )





## *Post mould label free graphics & Coatings*



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- **Developed 5 years ago in our labs.**
- **Experience and know-how from in-mould (over 12 years)**
- **Special effects like glitter, neon, gold, silver, metallic...**
- **Multicoloured designs**
- **Solvent, Acid and scratch proof,**
- **2 types of ink**
  - **Solvent Free** and Food contact approved (oil based, flame/mechanically cured)
  - **Chemically Cured** version for flame free application (**solvent** based)



*On-mould with gloss roller and stencil. Mechanically cured ink system*





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## *Application methods (post mould)*



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### **Stenciling and gloss roller**

- Ink deposition vs stencil thickness
- **Oil based ink:** recommended for typical Rotomoulded (PE or PP) or any other polyolefin mouldings of considerable wall thickness
- **Solvent based:** For all moulded PE/PP plastics
- post mould application with gloss roller and stencil



*Multi printing of info and logos on beac  
furniture*



## *Application methods (post mould)*



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### Screen printing

- Used with **fine screens** (usually 110T or finer)
  - **Detailed designs** achieved
  - **Oil based ink:** recommended for typical Rotomoulded mouldings (PE or PP).
  - **Solvent based:** For all moulded PE/PP plastics
- 
- Needs **flat surface** where artwork will be printed (curved ones possible but challenging)





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## *Application methods (post mould)*



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### **Stamping (classic)**

- **Good quality** rubber stamps
  - Pads of **selected** materials
  - **Detailed designs** achieved
  - Deposited amount of ink is small so no need of strong flaming
  - Only oil based ink
- 
- Needs **flat surface** where artwork will be printed



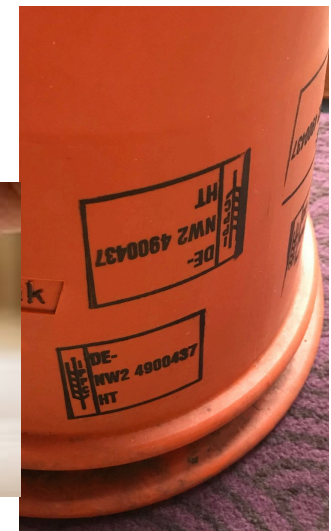
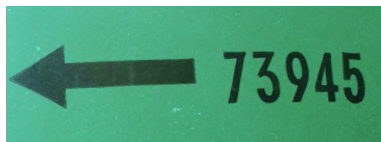
*Serial numbering on cement containers for  
tracking purposes*



*Exclusively customised stamp:  
combination of letters and  
numbers*

### Stamping on curved surfaces

- TELOS stamps (can be either Curved or flat...)
- Roller stamps
- For mono-directional curved surfaces
- [On mould gloss roller video 1](#)
- [On mould gloss roller video 2](#)







## *Application methods (post mould)*



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### **Highlighting**

- Highlighting embossed information: logos, volumetric indications etc.
- Simple, Quick method, Cost Effective
- Soft rubber roller and inked pad





## *Application methods*

### *Marker pen*



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- Designed mainly for writing on the moulding
- Used as a repair kit
  - **Oil based ink:** recommended for typical Rotomoulded moulded (PE or PP) and writing (e.g. serial numbers).
  - **Solvent based:** recommended for all moulded PE/PP plastics
    - Masking cross contamination stains etc.

## Types of ink

### Oil based, flame cured

- Permanent In/Post mould application (modified version)
- Colour matched, special effects
- Flexible: Can be screen printed, gloss roller and stenciled, Stamped (modified)..
- Used For highlighting, coating or just Writing
- Multi-coloured designs are possible but challenging
- Flexible product keeping in mind only moulding behaviour (e.g. Marine sector, tanks, buoys)



Multi-colour graphic on a PE buoy with stencil and gloss roller

## Types of Ink

### Solvent based, air dried

- Permanent: *Post mould only*
- Colour matched, special effects
- Flexible; Can be screen printed, gloss roller and stenciled
- **Not** suitable for stamping
- Ideal for Coating large surfaces
- No flaming required; so suitable for thin plastics (e.g. blow moulded)
- Multi-coloured designs possible but challenging



Figure shows coating done on a PE buoy with solvent based ink.





## *Combination of techniques*



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Coating done on a PE buoy with in mould  
red ink with gloss roller and stencil

Post mould lettering with black ink and  
stencil

All, very large sizes



# Application methods

## Summary



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	Stencilling & gloss roller	Screen printing	Spraying	Stamping	Highlighting	Marker pen
In mould						
Post mould						

	Mechanically cured ink	Solvent drying ink
In mould		
Post mould		



= suitable



=not suitable



=suitable with limitations



## ***Application methods***

### ***Summary***



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	Mechanically cured ink	Solvent based ink
Stenciling	In & Post mould	Post mould
Screen printing	In & Post mould	Post mould
Spraying	In mould	Post mould
Stamping	In & Post mould	N/A
Highlighting	Post mould	N/A
Marker pen	In & Post mould	Post Mould



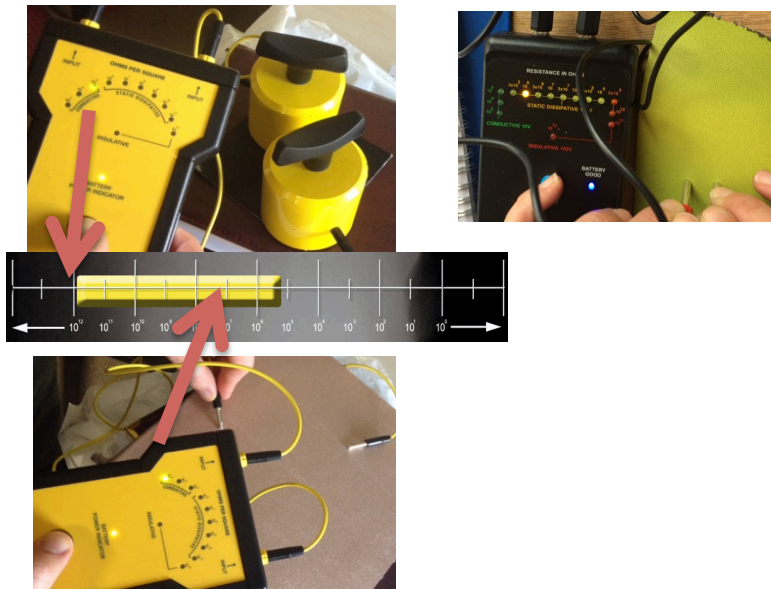
## Functional Coatings (in or post mould)



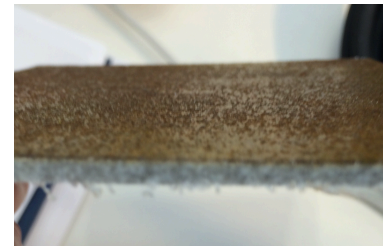
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**Anti-static also in  
colours!**



**Anti slip**



**Antimicrobial**



- More Coatings can be found in this range.
- Many ways to apply it: *Spray it, brush it, Roll it on....*



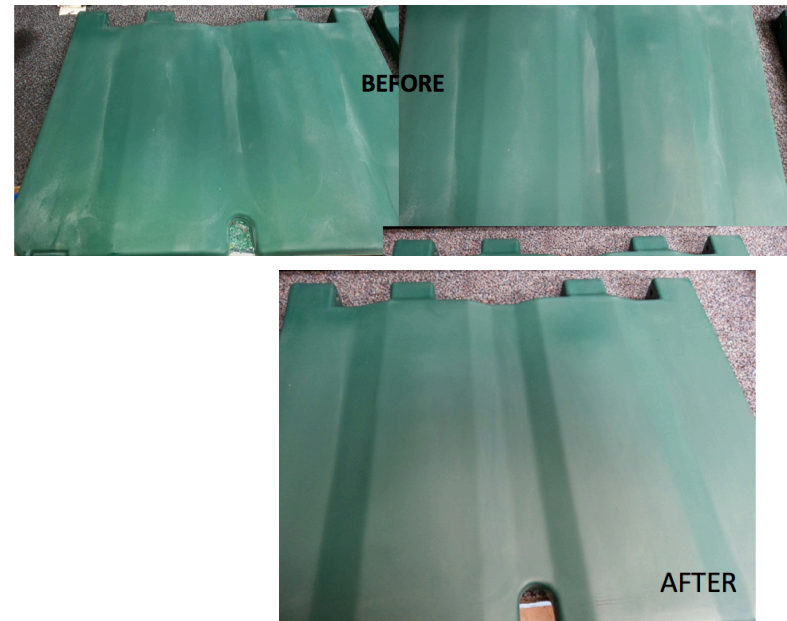
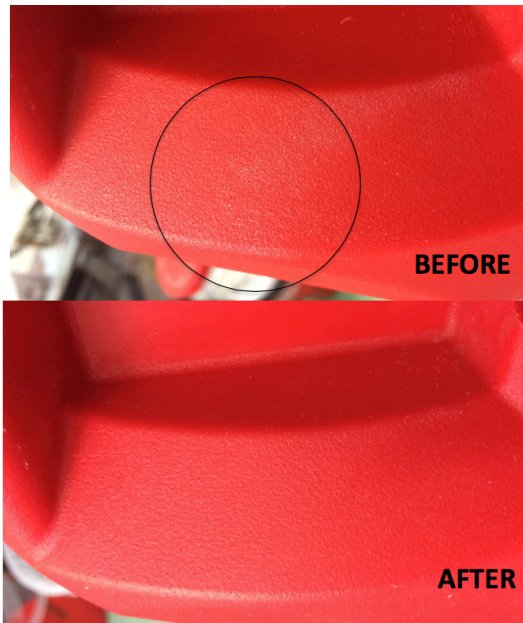
## *Post mould products for modifying product appearance*



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### *PE or PP Polish*

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White marks can be masked with a clear **PE or PP polish** (or colour matched)  
Product appearance is improved.  
The polish comes in 3 different types: gloss, semi matt, matt.



# Permanent Graphics & Coatings



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## Key Characteristics of ink systems for graphics and coatings

- Flexible; variety of application methods
- Cost effective
- Long shelf life
- Minimum waste (can be removed before curing)
- High quality and pigments of high light fastness
- Temperature independent
- Surface roughness independent
  
- Limitations for multi-coloured artwork



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