

# A METHOD FOR GENTLE AND LOW TEMPERATURE EMBOSSED OF LEATHER.

GIOVANNI DALLA VALLE<sup>1</sup>, MASSIMO CARIOLATO<sup>2</sup>, DIEGO TEZZA<sup>3</sup>, GIANCARLO LOVATO<sup>4</sup>

<sup>1</sup> R&D, Corichem srl. Via Lago di Garda 16, 36040, Sarego (VI), Italy, ricerca@corichem.it

<sup>2</sup> R&D, Corichem srl. Via Lago di Garda 16, 36040, Sarego (VI), Italy, ricerca.finishing@corichem.it

<sup>3</sup> Finishing, Corichem srl. Via Lago di Garda 16, 36040, Sarego (VI), Italy, diego.tezza@corichem.it

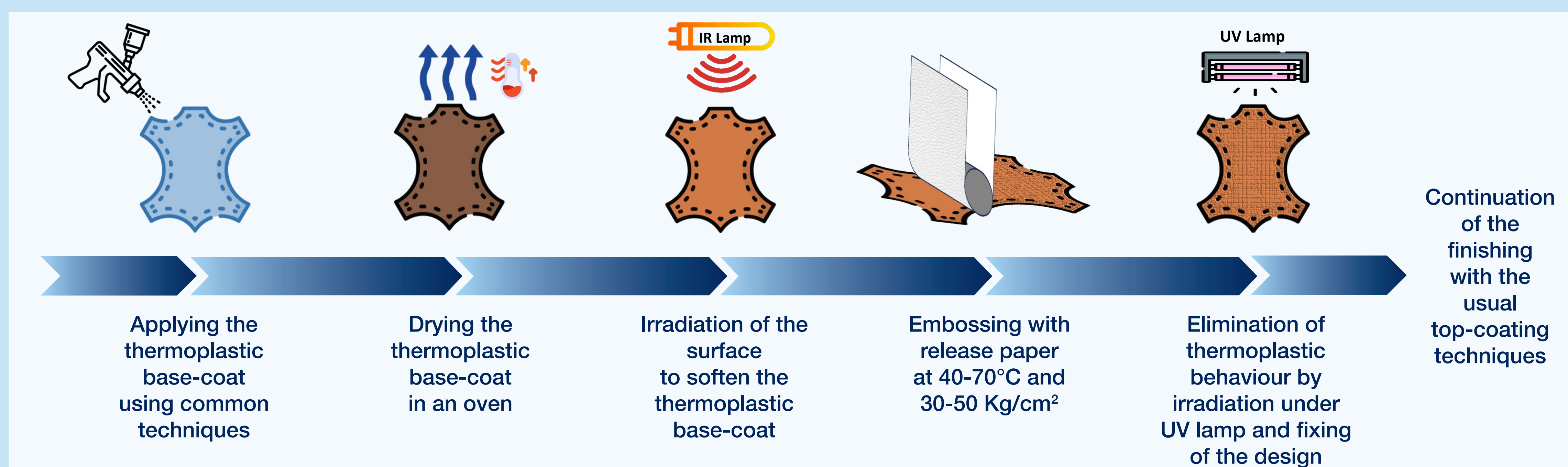
<sup>4</sup> R&D, Corichem srl. Via Lago di Garda 16, 36040, Sarego (VI), Italy, giancarlo.lovato@corichem.it

Standard methods for applying and embossing leather finishes require high temperatures to impart the desired design to the finished leather surface. Typically, the pressure and temperature of the cylinder are between 100 and 220 kg/cm<sup>2</sup> and between 75 and 135 °C.

With this work, we introduce an application and embossing protocol that allow to obtain a finished leather with the standard characteristics required by the market, using a cylinder pressure and temperature range of 30 to 50 kg/cm<sup>2</sup> and a temperature between 40 and 70°C.

Thermoplastic polyurethane base coats are used, which have a softening temperature of around 70°C, or UV-curable thermoplastics that can reach softening temperatures even lower than 60°C.

The use of UV-curable thermoplastic base coats is useful because, once passed under the UV lamp, they lose their thermoplastic characteristic, allowing the design to be instantly fixed.



The physical properties of some example finishes are shown in the table.

The base coats were mixed with 20% white paste pigment (titanium dioxide) and finished with a matt UV-curable top coat.

	Rubbing resistance cycles IUF 450 (wet)	Adhesion IUF 470 (dry) [N/10*mm]	Adhesion IUF 470 (wet) [N/10*mm]	Flex resistance cycles IUP 20
Thermoplastic base coat	550	16,5	4,5	>100.000
UV curable thermoplastic base coat	520	15	5	>100.000



For the project, a pilot plant was built to conduct the tests.

It is equipped with an IR system for softening the film, a printing system with release paper and a UV oven for fixing the base coats.

In this way, it was possible to carry out the industrialization of what was developed. What is reported here is patent pending.