



Solvent, enhancing adhesion of polyurethane soles to leather uppers

Materials supplier: Mendeleev Ltd.

Applied materials: Turbo-reactive solvent grade "Ya".

Objective: Remove the process of mechanical preparation of polyurethane soles glossy surface from the technological procedure. Create an agent that would enhance the adhesion of a polyurethane sole to leather.

Date of operation: December, 2011.

Air temperature: from 18°C.

Relative air humidity: 84%.

Turbo-Reactive Solvent Grade "Ya" helped in enhancement of adhesion when gluing polyurethane soles to leather uppers at one of Saint Petersburg footwear factories.

Works execution procedure:

Pic.1 – Polyurethane soles, glue, Turbo-reactive solvent grade "Ya"

Soles are produced by moulding. Note the perfectly plane and smooth surface that does not provide necessary adhesion of polyurethane to leather while gluing. Mechanical treatment was used for adhesion enhancement formerly. The process is labor-intensive, time-consuming and requires special skills. So how can we attain effective gluing of polyurethane soles to a leather upper? The answer is simple enough: the gloss should be treated with a mordant. Dichloroethane, acetone and methylene chloride could not cope with that. Turbo-reactive solvent grade "Ya" demonstrated excellent results, irrespective of polyurethane Shore hardness.

Pic.2 – Turbo-reactive solvent grade "Ya"

Turbo-reactive solvent grade "Ya" is a mixture of organic high-boiling solvents. By appearance it is a homogeneous, colorless liquid, free of foreign matter (mechanical admixtures), with a specific odor.

Pic.3 – Applying the solvent onto a polyurethane sole

The composition may be applied onto a polyurethane sole by spraying it through a trigger or with a brush, as is shown above. Wait for 3 minutes. During this period Turbo-reactive solvent grade "Ya" stains the surface and evaporates. Using this agent we can attain in a couple of minutes the same result as after a mechanical treatment.

Pic.4 – Microrelief of a sole before and after staining with Turbo-reactive solvent grade "Ya"

After the chemical staining with Turbo-reactive solvent grade "Ya" the glossy, perfectly plane surface of a polyurethane sole becomes rough and has a porous structure. Such a result was formerly attained by a mechanical treatment, a highly labor-intensive, dirty and uneconomical step. Surface porosity, i.e. availability of multitude of microroughnesses appears due to the micromolecular elastomeric layer being dissolved by the agent, and thus, making high adhesive capacity of the materials possible.

Pic.5 – One-component polyurethane glue fastening the surfaces rapidly and effectively

Pic.6 – Applying glue onto a polyurethane piece

Apply semitransparent glue onto a sole piece with a brush.

Pic.7 – Stick the polyurethane piece to the polyurethane sole

Pic.8 – The polyurethane piece glued fast to the polyurethane sole

Treatment of a smooth and glossy surface of the sole with Turbo-reactive solvent grade "Ya" is a fundamental step, resulting in considerable adhesion enhancement of the different Shore hardness materials being glued. Due to this solvent the mechanical treatment step was excluded from the works execution procedure. Turbo-reactive solvent grade "Ya", manufactured by Mendeleev Ltd. improved labor efficiency by means of one item treatment period increase. Polyurethane pieces are glued to each other rather hard. However, after staining the materials with composite Turbo-reactive solvent grade "Ya", a polyurethane piece was glued to a



ООО «Менделеев»

Разработка и производство реставрационных и лакокрасочных материалов

Адрес: 191040, Санкт-Петербург, Лиговский проспект, д. 50 корп. 17, вход №2, домофон «1»

Телефоны: (812) 327-44-24, 327-44-25, 327-44-27

Е-mail: mendeleev@dmendeleev.com

Часы работы: пн-пт 10:00-18:00, обед 14:00-15:00

Сайт: www.dmendeleev.com

polyurethane sole so fast that it was impossible to separate them. Materials merged into a single piece due to high rubber adhesion capacity. Thus the polyurethane sole itself is ruptured now, the glued surfaces remaining undamaged.

- everything for footwear production
- footwear production and repair
- mechanical surface treatment before footwear parts gluing
- footwear modeling and production
- footwear factory
- footwear factories of Saint Petersburg
- footwear by order
- orthopedic footwear
- pvc
- flat and profiled sole
- molded and formed soles
- polyurethane plastics
- porous and non-porous rubber for sole production
- rubber footwear
- synthetic polymers for soles
- gluing in footwear production
- styronil