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PRESS RELEASE

Number 58

COMPAMED 2013
WACKER Develops Ultrathin Precision Silicone Film for Wound Dressing and Prosthetics Applications

Munich, November 20, 2013 – WACKER, the Munich-based chemical group, will be premiering a silicone film for medical applications at COMPAMED 2013 in Düsseldorf, Germany. This ultrathin product is precision made from highly pure silicone. It is marketed under the name SILPURAN® Film and is ideal for realizing novel product ideas and concepts. For example, it can serve as a flexible wound dressing, as a breathable membrane, or as a dielectric elastomer in sensors and artificial muscles. A further novelty to be unveiled is SILPURAN® AUX 8250 RO. This is a silicone masterbatch containing a barium sulfate contrast medium for formulating silicone compounds for radio-opaque tubes and catheters. COMPAMED 2013 takes place in Düsseldorf from November 20 to 22.

WACKER first presented precision-made silicone films at this year's K plastics tradeshow, which closed its doors a few weeks ago in Düsseldorf. At COMPAMED, the company will focus on a specific grade of this continuous film that addresses the needs of the health care and medical technology sectors. SILPURAN® Film consists of an ultrapure silicone rubber and is produced in thicknesses down to 20 microns. Ultrathin and extremely flexible, the films are manufactured under cleanroom conditions to avoid the risk of contamination. Like all

SILPURAN® products, SILPURAN® Film is free of organic plasticizers and stabilizers. The silicone rubber used in these films has passed selected tests for biocompatibility according to ISO 10993 and US Pharmacopeia Class VI. SILPURAN® silicones are manufactured, filled and packaged to WACKER's own standard for medical raw materials (WACKER CLEAN OPERATIONS).

A patent application has been submitted for the production process, which delivers immaculate and extremely uniform silicone films of a defined thickness. The film thickness across the entire width and length of the film web deviates from specification by at most ±5 percent. This particular property, together with the material's typical silicone characteristics, permits applications that were previously very difficult or even impossible to implement on an industrial scale. For improved handling, the silicone films come with an intermediate backing from which they can easily be peeled intact.

SILPURAN® Film exhibits typical silicone properties. It is chemically inert, heat-resistant, flexible at low temperatures, elastic and tear-resistant. Silicones are also renowned for being permeable to gas, but not to water. SILPURAN® Film is no different in this respect. Water beads off the film, but water vapor and gases such as oxygen diffuse through the membrane. This property can be exploited in all kinds of ways. For example, breathable adhesive plasters that help boost the healing process can be made from SILPURAN® Film. The silicone film can also be used as a gas-permeable membrane in other medical devices, such as heart-lung machines.

SILPURAN® Film exhibits constant electrical resistance over a broad temperature range and good tracking resistance. Dielectric characteristics such as these are much sought-after in medical technology, for example where electroactive polymers (EAPs) are involved. In certain circumstances, EAPs will alter their shape as soon as an electric voltage is applied. This principle affords a way to develop high-precision, efficient sensors and actuators. Silicone films that are components of actuators make it possible, for example, to develop novel prostheses, whose artificial muscles replicate not only linear, but also natural forms of movement.

Masterbatch for Radio-Opaque Applications:
SILPURAN® AUX 8250 RO

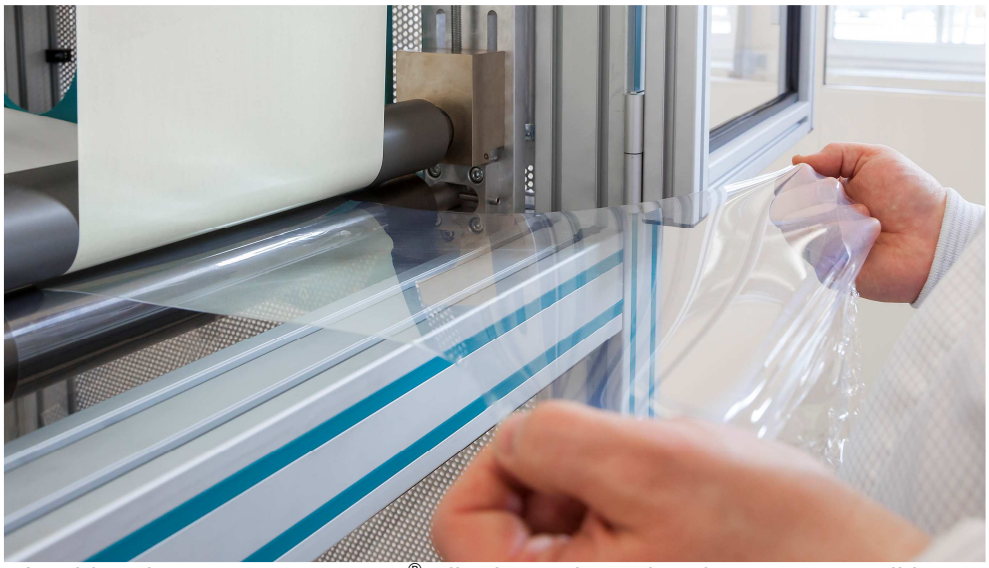
Silicone elastomers are often used in medical applications because of their flexibility and general compatibility. To ensure that tubes and catheters made from silicone always show up on x-ray charts, a contrast medium is incorporated into the silicone rubber. That is the only way to render the silicone rubber opaque to x-rays.

At COMPAMED 2013, WACKER will be revealing a silicone rubber that greatly simplifies the production of such silicone blends. SILPURAN® AUX 8250 RO serves as a silicone masterbatch and has a barium sulfate content of 75 percent. The latter is a powdery contrast medium, which is frequently used in radiology.

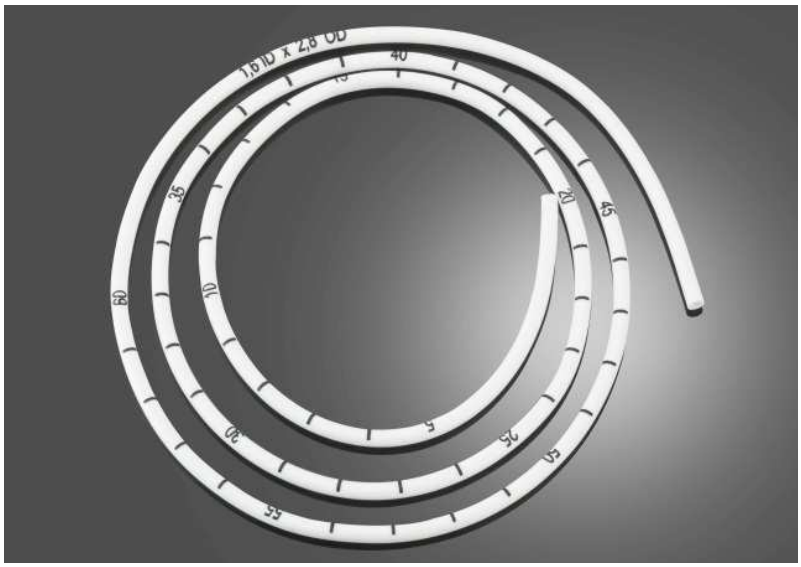
Compounding consists in incorporating the masterbatch into the silicone material directly, without any additional processing stages. This approach offers numerous advantages. Because the contrast medium comes predispersed in silicone, SILPURAN® AUX 8250 RO

makes mixing much easier: there is no troublesome powder to disperse. Furthermore, the high concentration of barium sulfate allows producers to easily vary the dosage of the active ingredient in the silicone rubber to meet their customers' wishes.

SILPURAN® AUX 8250 RO has passed selected tests for biocompatibility according to ISO 10993 and US Pharmacopeia Class VI. It can be blended with virtually all heat-curing solid silicone rubbers and can be extruded into tubes and molded into parts.



Ultrathin, ultrapure: SILPURAN® Film is made under cleanroom conditions. The film is breathable and has good dielectric properties. Candidate applications include adhesive plasters and functional membranes for medical devices. (Photo: Wacker Chemie AG)



Silicone tubes show up on x-ray charts if a contrast medium has been incorporated into the silicone rubber compound. The new SILPURAN® AUX 8250 RO masterbatch simplifies incorporation of the contrast medium and allows producers to vary the dosage. (Photo courtesy of Helix Medical Europe GmbH)

Note:

These photos are available for download at:
http://www.wacker.com/pressreleases

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The company in brief:
WACKER is a globally-active chemical company with some 16,300 employees and annual sales of around €4.63 billion (2012).
WACKER has a global network of 24 production sites, 22 technical competence centers and 53 sales offices.

WACKER SILICONES
Silicone fluids, emulsions, rubber and resins; silanes; pyrogenic silicas; thermoplastic silicone elastomers

WACKER POLYMERS
Polyvinyl acetates and vinyl acetate copolymers in the form of dispersible polymer powders, dispersions, solid resins and solutions used as binders for construction chemicals, paints and coatings, adhesives, plasters, textiles and nonwovens, as well as for polymeric materials based on renewable resources

WACKER BIOSOLUTIONS
Biotech products such as cyclodextrins, cysteine and biologics, as well as fine chemicals and PVAc solid resins

WACKER POLYSILICON
Polysilicon for the semiconductor and photovoltaic industries

Siltronic
Hyperpure silicon wafers and monocrystals for semiconductor components