

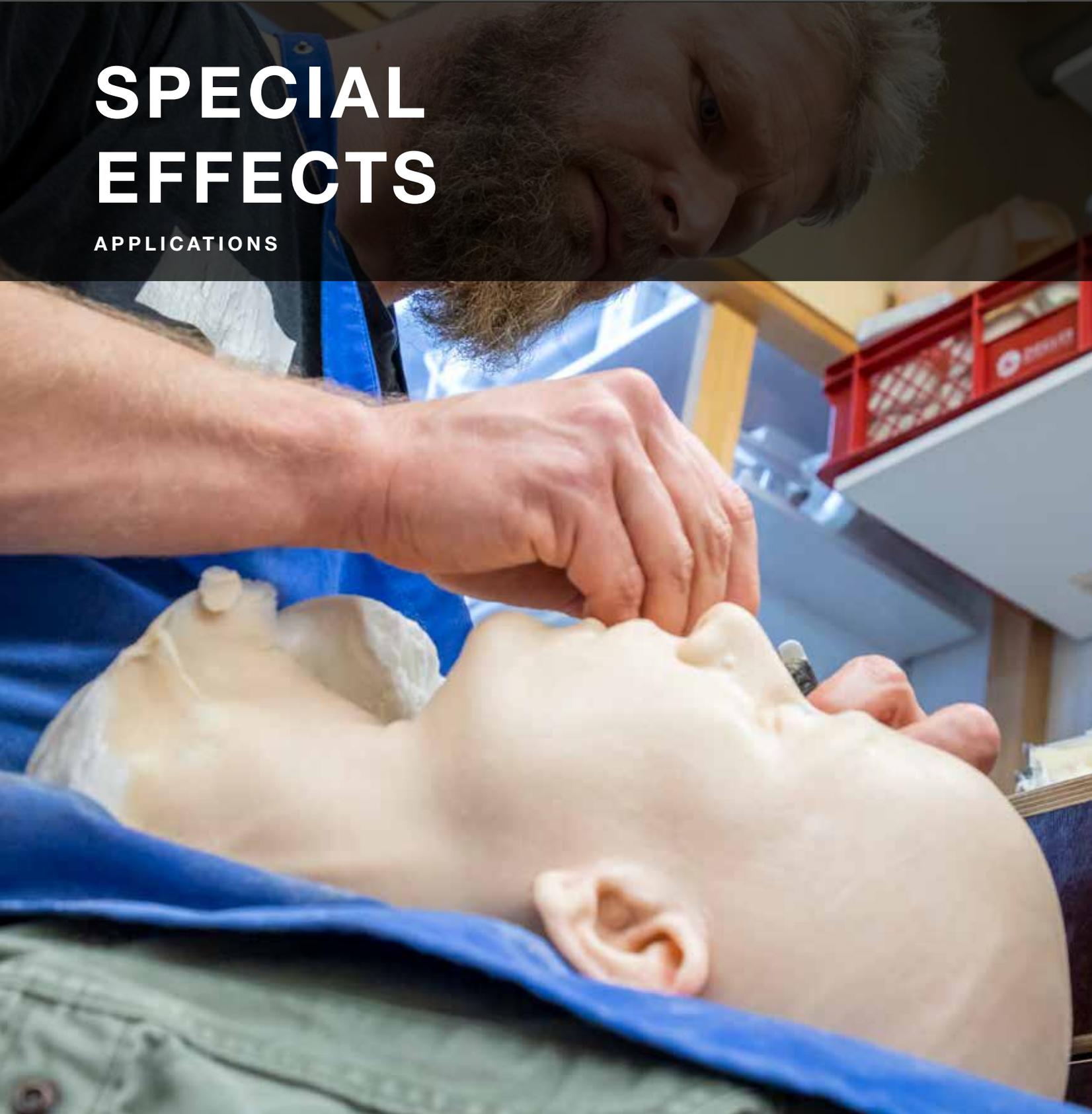
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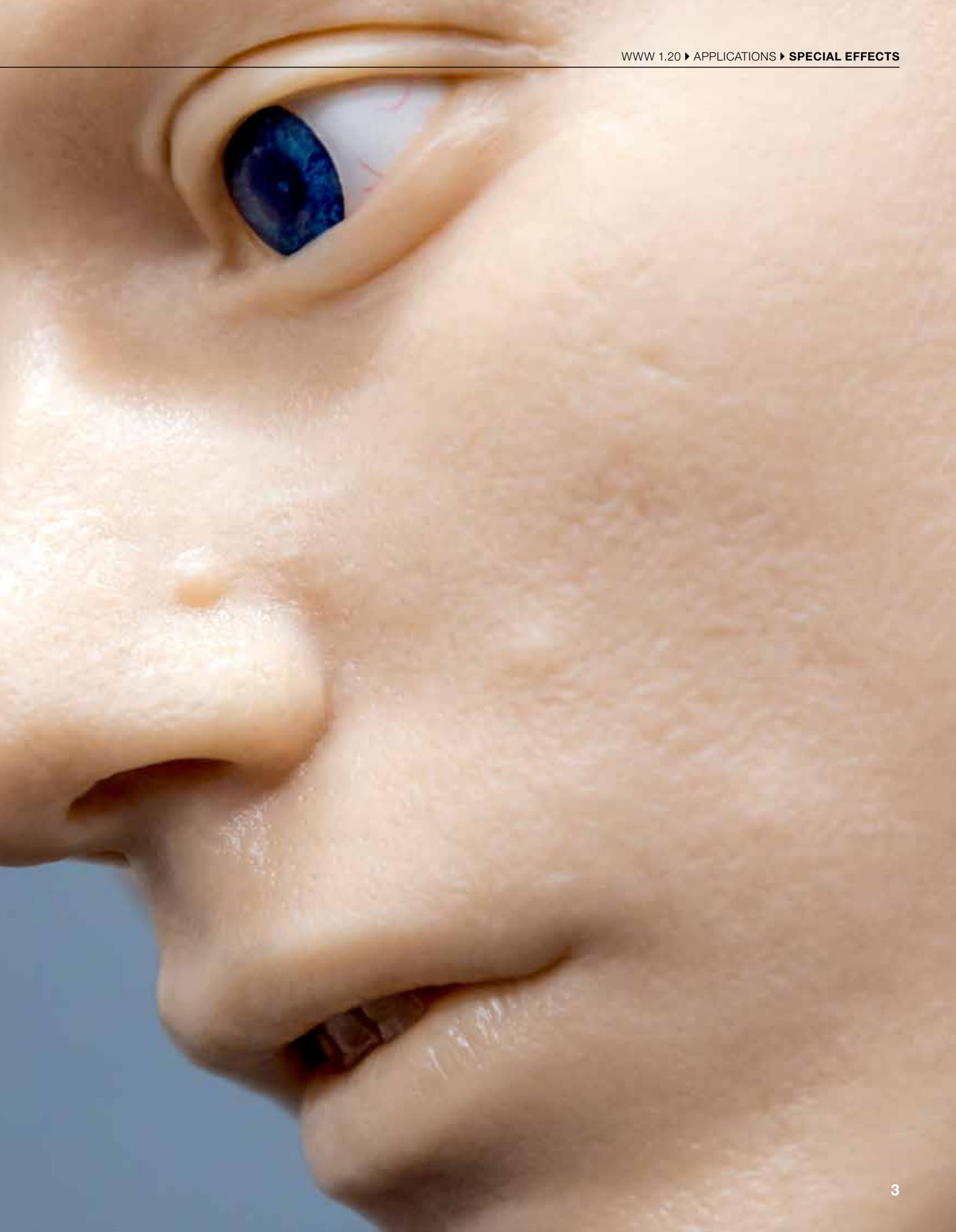
SPECIAL EFFECTS

APPLICATIONS



“SILICONE TAKES CENTER STAGE”

Special Effects departments in the film industry have long been using silicone rubber to create lifelike body replicas. And in the meantime, the makeup artists at the Munich Kammerspiele – a publicly funded municipal theater – also rely on this material that produces remarkably authentic-looking imitation human skin.





Busts of all the big names associated with the Munich Kammerspiele, both past and present, stand side by side on the shelves of the theater's makeup and hairstyling workshop: a veritable who's who of German theater, molded and shaped with silicone rubber and plaster of paris. "We need the impressions of the heads of actors in order to make wigs a perfect fit," says Brigitte Frank, head of the makeup and hairstyling department at the Kammerspiele. "Ultimately,

the audience shouldn't notice that an actor is wearing a wig."

Silicone is ubiquitous here in the Kammerspiele theater workshop at no. 2, Otto-Falckenberg-Straße, which is also where the theater director's and administrative offices are based. To the left of the door, numerous artificial scars made of silicone are attached to a sampler with colorful pins. And the workshop tables are strewn with body parts, such as arms, hands and legs. Some seem shockingly real, but tears,



ELASTOSIL® FX 20, one of four WACKER silicone rubber grades specifically created for the special effects sector, is supplied as two components that are mixed just before processing.

“Our viewing habits have changed. Now, artists expect the materials to be as lifelike as in a film.”

Brigitte Frank, Head of Makeup and Hairstyling,
Munich Kammerspiele Theater

blood and corpses have always been the stuff of theater – dating back to the first Greek tragedies penned by Sophocles. “We use our makeup artistry to create the dramatic effect the stage director is aiming at,” says Frank, explaining her work.

The Munich Kammerspiele looms large in the German-speaking theater world. Bertold Brecht worked here from 1922, first as a dramaturge and later as a director. Elisabeth Bergner, Therese Giehse and Marianne Hoppe were German-language theater icons at different times between the 1920s and 1980s who celebrated spectacular successes in the Art Nouveau Kammerspiele building at no. 26, Maximilianstraße. And when one of expressionist theater's greats, director and actor Fritz Kortner, returned from exile in the USA to the bombed ruins of post-war Germany in 1947, he naturally made the Kammerspiele his artistic home.

No German-speaking playhouse has received the “Theater heute” journal’s Theater of the Year Award as often as the Kammerspiele – most recently in 2019. This year, the Munich troupe had again been invited to perform two pieces at the Berlin Theater Festival, where the top ten performances from German-speaking countries were to have been presented. Unfortunately, the event had to be cancelled due to the coronavirus pandemic.

HIGH STANDARDS

The stringent artistic demands made by the Kammerspiele match the standard the directors expect from the makeup and hairstyling department – and the demands the makeup artists place on their own work. “It’s not the material

The silicone rubber negative mold before it is coated with release agent in order to obtain a skin-colored positive copy, which is likewise made of silicone. The negative mold is colored blue to tell the materials apart more readily.



that counts, but the effect that it can achieve,” explains Frank. “Nowadays, we’re used to movie visuals and high standards of realism. And when realism is required on stage, silicone gives us an opportunity to create this realism.” She added that silicone extended the range available to makeup artists. “We can make our stage productions more cinematic visually,” says Frank, who began her training at the Kammerspiele in 1985. She founded a workshop for special effects (SFX) and wig production, which she headed for 15 years before returning to her roots when Johan Simons became Kammerspiele theater director in 2009.

Frank first encountered silicone rubber in her workshop in the mid-2000s – a plastic that has been used extensively by makeup artists in the film industry for years but was relatively unknown in the theater: silicone rubber.

Since then, she has immersed herself in the specific characteristics of this material, and the Munich Kammerspiele team now ranks among the experts in silicone.



The readily pourable silicone rubber is given a skin tone color.

MODULAR SYSTEM FOR THE SPECIAL EFFECTS INDUSTRY

WACKER offers a modular system comprising four different silicone rubber compounds for special effects technicians working in film and theater. This covers most applications. The four grades have different Shore hardnesses:

- **ELASTOSIL® FX 10** (Shore hardness A10)
- **ELASTOSIL® FX 20** (Shore hardness A20)
- **ELASTOSIL® FX 28** (Shore hardness A28)
- **ELASTOSIL® FX 30 Gel**
(Shore hardness 00-30, very soft)

FX 28 is used predominantly as a mold-making material for stage and film decorations, but also for master molds. The softer grades are used in a variety of applications such as making body parts and special effects like imitation wounds. WACKER’s FX Softener is an additive that enables the customer to adjust the Shore hardness for each of the four grades so that it is perfectly tailored to achieve the desired special effect.

Other additives in the modular system:

- **FX Slow**
to prolong the pot life
- **FX Fast**
to accelerate crosslinking
- **FX Thixo**
to enhance the stability of the rubber compound so that it does not run down vertical surfaces



An entire team of makeup artists uses brushes and spatulas to spread the still-liquid silicone over the negative mold.

“ELASTOSIL® FX 20 is ideally suited for extremely lifelike reproductions. It is tailored to produce an optimal combination of stability and softness.”

Hans-Rudolf Pfeffer, Technical Service Manager, Industrial Solutions, WACKER SILICONES

STANDARD STAGE MATERIAL

It quickly advanced to the standard material for many stage applications, such as artificial scars or baldness. “Now, we expect the material to be as lifelike as in a film,” says Frank. That’s not just due to the rise in video footage, but also to greater artistic demands. Silicone gives us a chance to create something hyperrealistic for the first time,” she explains.

ARTIFICIAL SCALP

She carefully runs her fingers along an artificial scalp for an actor whose role requires him to

play a bald character. The scalp is simply fitted over the actor’s hair and then affixed. “Silicone transmits light better than other plastics,” she says. The skin appears more translucent. By this she means light permeates the skin better, giving it a more realistic, lifelike sheen.

Every once in a while, two makeup artists work together to help an actor put on special effects makeup. They have to apply the makeup very quickly so that the transitions between real and artificial skin are invisible. The challenges they face are sometimes tougher than in the film industry, says Frank.

“In cinematography, a scene is shot and then the makeup artist can redo the makeup. Our makeup has to last two hours. And we have less time up front!”

The practice of recreating actors’ entire bodies with silicone rubber for especially drastic scenes also comes from the film industry. Led by Frank, the Munich Kammer-spiele makeup and hairstyling team is currently working on a mold of the hyperrealistic copy of the body of the Viennese choreographer Florentina Holzinger, who is known for the explicit physicality of her performances.



Making the positive copy requires the makeup artists to work very meticulously at top speed. Since the silicone cures in a few minutes, the entire process needs to be performed quickly.

YOU NEED COMMAND OVER YOUR BODY

“Full-body molds are quite a challenge – and that goes for the model too. We only do this with experienced artists who have command over their bodies,” she adds. The artist lies on a long table in the middle of the room surrounded by seven makeup artists until Tommy Opatz arrives with a bucket containing freshly mixed A- and B-component blue silicone rubber. With great concentration, he pours the silicone over the model’s body while his colleagues distribute the viscous compound evenly with brushes and trowels. “We only

have a small time frame for the whole impression because the silicone cures so quickly and the model can’t cope with the ordeal the process involves for long,” says Opatz, a makeup artist who came to the Kammerspiele from the film industry and whose work includes the *Hobbit* movies.

APPLICATION OF THREE LAYERS

The first silicone layer cures after six or seven minutes. Two additional layers follow until the flexible rubber is thick enough to make a firm negative mold. “Not a single air bubble has formed,” he notes. Now the makeup artists apply



As the negative mold is likewise made of highly elastic silicone rubber, plaster of paris bandages are used to support it.

a layer of plaster of paris bandages onto the silicone to support the polymer compound. Then the team removes the mold. The model turns over on the table to lie on her stomach and the whole process is repeated on the back of her body. The molding process is finished after 45 minutes and everyone breathes a sigh of relief, especially the model of whom the mold was made.

The next day, the team of six makeup artists meets up to pour a silicone rubber compound into the negative mold to create the copy of the body. “The worst-case scenario would be if the silicone bonded together,” says Opatz.

That is why the Kammerspiele team’s normal routine involves trying out different release agents in advance. “Not every release agent is suitable for every type of silicone,” explains Frank. The number of rubber layers should be tested beforehand, too – as should the time it takes the cured silicone rubber to aerate. “This is all about learning from experience. What we learned then has to be repeatedly put to the test for each individual application,” she adds.

The makeup artists use ELASTOSIL® FX 20 to make the replica. It is a pourable silicone rubber compound that addition-cures at room temperature and is supplied as two components. “This silicone is very good for accurate body replicas – it is formulated as an optimal mix of stability





The makeup artists' job of implanting hair and eyebrows into the silicone body is extremely detailed work.

and compressibility,” explains WACKER’s Hans-Rudolf Pfeffer, who heads Technical Support for moldmaking-grade silicone rubbers.

WACKER SPONSORS SILICONE

ELASTOSIL® FX 20 is part of a modular system comprising four specialty silicone rubber compounds plus various additives which WACKER developed specifically for the special effects industry (see box on page 16). The Munich Kammerspiele makeup artists collaborated with WACKER throughout the development process. Their periodic feedback helped to tailor the silicone grades specifically to their needs. In return, WACKER provided the silicone for various Kammerspiele projects free of charge – including a good 40 kg for the positive mold



of the Holzinger figure. “The Kammerspiele team has a high level of expertise when it comes to applications. It is a real win-win situation for both parties,” notes Pfeffer.

This expertise is documented in recipe books lining the shelves of the workshop. Brigitte Frank calls them “our bible.” Whenever the staff work with silicone or other materials, they make a note of all the materials used and

the underlying conditions, including the ambient temperature or atmospheric humidity – everything that could influence the curing and the properties of the material.

Tommy Opatz picks up a silicone forearm and hands it to the visitor. “We make the forearm with a full cast,” he explains. “Upper arms and torso are foamed with polyurethane. Otherwise the body would be too heavy.”



Only after pigmentation has been hand-painted on and the hair implanted is the actor's body mold more or less indistinguishable from the real thing.

Creating the actual full-body cast is an act of great patience. The makeup artists need seven to nine hours for this work. And even then, it's by no means done. The next steps are: making a wig, casting the head and positioning it on the body. The seams are patched meticulously, which takes three to four days. And finally, it's

time for color. While the silicone compound comes in a particular skin color, the replica must be hand painted after curing to appear as realistic as possible. But only specialty paint – diluted silicone rubber compounds mixed with pigments – adheres to silicone rubber due to its low surface tension.

Using airbrushes, delicate paintbrushes and sponges, the makeup artists dab on or finely apply age spots, pigmentation, blood vessels and all the physical characteristics needed to transform the unicolored silicone body into a realistic replica of a human being. For a current production, they also apply injuries to the back of the body along with ruptured skin. Then the wig is fitted and the body hair is implanted. This involves implanting

individual hairs in the silicone. The makeup artists developed special silicone eyes, which are not commercially available. "Glass eyes break, and those made from conventional plastic are incredibly expensive – so we were looking for an alternative," says Frank.

By the time Florentina Holzinger's silicone twin appears on the Kammerspiele stage, the makeup artists have invested several hundred hours of work in this body replica. Attention to detail and striving for perfection are essential for this work, as are artistic sensitivity and craftsmanship based on scientific and technical knowledge. "This task was a real challenge. Our team had a huge amount of fun planning, combining and using the different materials and Shore hardnesses," explains Frank. ■

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