

roadcast

BENTLEY
CHEMICALS LTD

Specialised Product Solutions

November 2005

Easy EZ~Spray

Bentley Chemicals has launched the EZ~Spray Junior, a unique and highly cost effective system which sprays, or injects, five different materials from one gun. It can be used for specialised moulding, coating and encapsulation. The new system sprays urethane rubber and plastic, StyroCoat (polystyrene hard coating), rigid foam and for the very first time, silicone rubber, enabling the production of "instant moulds" from a wide variety of surfaces. Developed by Smooth-On in the United States, EZ~Spray Junior incorporates a special cartridge gun which only requires a compressor to enable it to spray rubber, plastic or foam from dual 400ml disposable cartridges. There is no wastage and it is clean,



The EZ-Spray System spraying Silicone Rubber for detailed restoration work in a Grade 2 listed building

easy to use, requires no maintenance, brings major time and labour savings and can be used across a wide variety of applications.

The biggest breakthrough is the systems ability to spray silicone rubber. The rubber will set in one hour to make almost instant moulds from any original model. Minimal surface preparation is required for making fast sprayed silicone moulds (with a hardness of Shore A35) that have the best release properties for production casting of resins and plaster.

When used to spray urethane rubber for making moulds to cast concrete, plaster and wax, surface preparation is required by applying a sealing agent and release agent for quick and easy de-moulding.

Urethane plastic can be sprayed over cured rubber moulds to make fast support shells and mother moulds. Plastic can also be sprayed into the rubber moulds to make fast, lightweight castings.

With foams, the system can be used for insulation and reinforcement, for protection and coating in particularly hostile environments and for making lightweight, flame resistant castings. Styrocoat - a plastic that is flame and impact resistant - can be used for hard coating large areas of foam quickly. It can then be sanded, primed and painted.



Masterclass Success

Bentley Chemical's first Special Effects Master Class Workshop at Shepperton Studios, which was organised as part of National Skills Day, was



Skinsil hand moulded at the Masterclass

such a success that the Company has announced plans to make the workshops a regular feature from now on. Over 50 people from as far away as Finland attended

the event.

The workshop lasted two days and featured special demonstrations of "lifecasting" using prosthetic silicone, as well as demonstrations of the new EZ~Spray system for general moulding. Attendees were able to watch the experts using leading edge materials to create instant life like moulds of various body parts. Some participants even took away their own body lifecasts for posterity.

The event was attended by a mixture of freelance special effects practitioners, lifecasters, make-up artists, journalists, tutors and students. Kristina Valkeasuo came from Finland, "I have been working in special effects for 42 years, starting in the BBC make-up school in 1964, and I teach special



A moulded face gets a final inspection

effects in Finland, Estonia, Sweden and the UK. It has been wonderful, worth coming all the way."

Peter Turnock, sales and marketing director of Bentley was also enthusiastic about the reaction, "We were able to demonstrate just how effective and easy it is to use these new products, which have been specially developed to deliver

improved technical performance giving special effects and make-up specialists much greater flexibility. This is a specialist skill covered by very few colleges. Courses tend to be general art and not lifecasting, prosthetics, special effects and animatronics. We have been delighted with the response and we will be doing these on a regular basis."

Branch Tree EZ Foam

The latest branch of Offspring Shoes, which has recently opened in Camden High Street, has an unusual fixture as part of the décor. Clear tree trunks can be seen "growing" out of the floor and right through the ceiling!

The 2.5 metre trunks have been designed and made by Opus Studios out of Bentley's Crystal Clear. They are lit from both top and bottom to create a striking effect, which acts as a central focus in the interior of the shop.

Crystal Clear is just one of the resins which is increasingly being used by creative fabricators and



Crystal Clear 'tree trunk'

marketing professionals to achieve special effects for promotional purposes in a variety of retail settings. Opus has also used Crystal Clear to create deer antlers for interior fittings in the Pringle shops worldwide.

The new EZ Spray System being used to inject foam into a damaged column in restoration work inside a Grade 2 listed Art Deco cinema.



RotaRevolution

Following the successful launch of Bentley's new range of rotational moulding machines, the Company has been working closely with a number of clients to break new ground in the application of Rotacasting. Over the last year, the Company has been assisting in the development of Rotacasting techniques to replace more traditional methods of production. Everything from specialised traffic bollards, which contain complex electrical systems, to mannequins for shop windows are now



Rotacast EVR machine

being produced using the new range of machines. B Hepworth & Co are manufacturers of windscreen wiper systems for the marine, rail and commercial industry and



*The Princess V58 (courtesy of Princess Yachts).
Inset picture: Rotacast cowl for the Princess V58.*

have over seventy years of experience specialising in the design and manufacture of performance window wiper systems. They have recently bought one of Bentley's Rotacasting machines after a successful switch from traditional methods of production.

The task was to develop a cowl for one of the company's specialised windscreen motors, which traditionally would have been made in aluminium. The production run was relatively small and the set-up and tooling costs of an aluminium version would have been high. The challenge was to use rotational moulding to

produce a product that met all the performance and quality criteria, with a high standard of finish on both internal and external surfaces.

Bentley worked closely with Hepworths to come up with the right combination of spin speed, weight and balance. "We knew that there were significant advantages to using Rotacasting," commented Jonathan Eddy, chief executive of Hepworths, "the costs were low compared to our traditional methods and the set-up times much quicker. We were delighted when the development work was successful and we were able to achieve the quality

standards necessary." Hepworths are now using their newly acquired Rotacasting machine to develop special windscreen water reservoirs for trams in Germany.

Rotacasting can be used with specifically formulated liquid plastics, high strength concrete and plaster, as well as with a variety of other chemicals. It has applications in manufacturing, design process engineering, mould making - even within the special effects industry. Full training is available from Bentley and demonstrations of Rotacast machines can be organised.

New Frontier

Purford Green Infant School in Harlow now has a frontage with a difference! "Misty Morning" is a public work of art by Philip Melling and replaces the schools gates, fence and signage which had been there for 40 years. The work has been hand made by Philip



The new gates at Purford Green School

at his workshop at The Brays Grove Community School nearby. It was fabricated from steel, with pieces of translucent resin from Bentley, set into the metal. "I wanted to give the young students a sense of entering another world when they arrive for school, one that would be welcoming, exciting and different. Bentley Chemicals were very helpful in achieving the desired effect."

Dubai Development

A particularly unusual and challenging project to provide a diverse range of highly decorative internal and external signage for a new hotel in Dubai has recently been successfully completed by Emirates Neon, working in close partnership with Bentley Chemicals. Bentley were responsible for researching and supplying the materials, developing and implementing the manufacturing process and training all the employees.

The international brief for the project was issued in 2003 by Emirates Neon who have been manufacturing all types of signage and outdoor media for over 30 years.



The Hotel Madinat Jumeirah at Dubai

The brief required the successful candidate to research and supply “alternative” materials that would out perform the traditional wood and metal. It was also a requirement to be able to set up the manufacturing process from scratch, and train the company’s employees - all against tight deadlines. Any alternative plastic signage



had to perform well in the climate of extreme heat and humidity and also had to retain a very traditional, quality look to deliver the aesthetic impact demanded.

Bentley won the contract late in 2003 and began the process of creating an entirely new department and manufacturing process for Emirates Neon in January 2004. The range of internal and external signage for the hotel was highly ornate and intricate. It had to be able to withstand high heat and humidity without distortion and be supplied

in a range of finishes from “naturally aged” bronze to silver and gold plated.

The project was delivered in three stages – mould making; the development of the silver and gold plating plant and finally, the complex process of mould production. Masters for the individual signs were created out of large blocks of dense polyurethane and machine routed MDF. The blocks and MDF were engineered to include special rebates for inserts and then finished with the necessary, detailed filigree work before the creation of the production moulds.

The process of gold and silver plating non-conductive materials such as plastic was a new skill for the Middle East. The plant incorporated the plating process equipment; vacuum machinery for de-gassing polyurethane and rubber, fettling equipment for de-burring castings and the set up of oxidation processes to patina, or naturally age, bronze powders prior to casting. The finished silver and

gold plated signage that the plant can now produce is of such a high standard that it qualifies for an assay office hallmark.

Rob Price, from Bentley Chemical’s technical sales team, spent five weeks in Dubai facilitating the whole project. “It was a challenging concept to bring all our expertise on materials, processes and production into focus in such a short timescale,” commented Rob, “We really had to hit the ground running and ensure that Emirates Neon were geared to deliver the very high and exacting standards that were



demanded. It took a lot of ingenuity and application but we are delighted with the successful outcome.”

Rehan Merchant from Emirates Neon added, “We have worked really well with Bentley and been through a large learning curve. We are now positioned to explore many more opportunities for specialist signage. This work on high quality, aesthetically pleasing signage that out performs traditional materials has given us a distinct competitive edge. I am sure that there will be many more applications in the future across a wide variety of sectors.”

Seeing is Believing



The Intelligent Road Stud

In 2001 Bentley Chemicals began working with Astucia, a company that specialises in the development of traffic management systems. Astucia had created an "Intelligent Road Stud" (IRS) which, unlike traditional cat's eyes that are only reflective, uses a solar powered LED to project light that is visible

up to 900 metres away. The studs, developed to reduce accidents and increase road safety, are light sensitive and automatically switch on at dusk.

The challenge for Bentley was to supply a resin for the encapsulation of all the electronics that had a high refractive index, a high heat distortion temperature and which was UV resistant.

Working with Smooth-On, Bentley's principle suppliers of liquid urethane casting resins, a new resin was developed that could be poured for the encapsulation process and post cured at 80 degrees without "cooking" the sensitive electronic system. Crystal Clear 220 was the eventual result.

Approximately 20,000 of the new studs have been fitted to a 60 mile continuous stretch of road in South Africa and there are now just over 200 installations in the U.K on selected road sections. Today, as a full production line product, Crystal Clear 220 is used for encapsulating, potting, for making lenses and prototype models.

Hidden Depths

Based in Plymouth, Creative Paranoia is a company that specialises in models with a difference. From architectural and historical models through to life-size sharks and marine creatures, they have a growing reputation for their attention to detail and high quality.

Creative Paranoia have been using resins and special powders supplied by Bentley for the last year. "From the outset we have had fantastic help and advice" commented Shelagh Linton, Business Director at Creative Paranoia, "we travelled up to see them for a bit of a

Masterclass, and they were able to show us how to get the best out of the materials and improve our processes."

The sharks come in all



shapes and sizes. The life size sharks are all individually made and can be finished in any colour or design. They are used for exhibition purposes, private or business functions and are available to purchase, or

even to hire.

The 'Hidden Depths' collection is a range of bronze sharks "capturing the grace, beauty and dynamics of these amazing creatures." The company worked closely with Marine Biologists ensuring the anatomical accuracy of each finished sculpture, making them unique.

The collection is made up of five different sharks in various poses, each one being a limited edition of 250.

More information on the sharks and the company's other diverse modelling work can be found at www.creativeparanoia.com

new Products

Psycho Paint

Is a versatile and easy to use platinum silicone paint base to create painted-on colour effects to silicone creations. It is a two part, clear grade for pigmenting and applying by airbrush.

Slacker

A one part clear fluid which acts as a deadener to change the feel of silicone rubber to be more flesh like.

Skin Tite

To promote adhesion for prosthetic injuries/scarring or to create a flexible wound directly onto skin.

Ecoflex 00-10 & 00-30

Two very soft, translucent, platinum silicones, ideal for prosthetic skin parts. Can be coloured with Psycho Paint.

Task 8

A two part liquid polyurethane plastic with high temperature resistance (130 C). Quick curing, Shore "D" = 80. Ideal for thermo-forming.

Vytaflex

A two part liquid polyurethane rubber with high tear strength and long library life for concrete or plaster castings.

Rebound 25

A two part platinum silicone putty that can be spread onto most surfaces. It even sticks to itself - uncured to cured.

Equinox 25, 35 & 50

Three hardnesses of very fast curing platinum silicone rubbers for taking instant impressions to produce body parts, for orthopaedics, etc.

Formula FR79-206

A two part liquid polyurethane plastic which is flame resistant to UL 94 V-0 certification.

Mold Max 15T & 27T

Two low cost, two part, translucent, condensation cure silicone rubbers with high tear strength & elongation.

We will be demonstrating all new prosthetic grades & paint systems at the Make-Up Show on 29th/30th January 2006.

Growing Grottos

If you thought that all Santa's help was restricted to Elfish ingenuity and hard labour in the frozen wastes of Greenland, then it might come as a surprise to find that Newcastle-upon-Tyne also has a considerable input.

Centre Design, in Northumberland, are the leading suppliers of specialist display and animation services to the shopping centre and retail industries, and spectacular grottos are just one of their specialities.

Over the last twelve months they have begun to switch to Bentley's EZ Spray, Styrocoat and spray systems to help create their large scale structures and props. "Traditionally we have used materials like glass fibre to create

large parts of our special structures," commented Richard Hume, Design and Development director, "but we can now save a great deal of time and also achieve fine surface detail by using Bentley's products."

Centre Design are also using the Company's products to create a wide variety of props such as snowmen, buckets, spades, etc. They offer an integrated package of services from the design of decoration and display schemes through to their manufacture and installation.

One of Santa's Grottos by Centre Design



Olympic Opportunity

Britain's successful bid to host the 2012 Olympics has been hailed as a major opportunity for the nation.

As part of the build up campaign, a major promotion was put on in Trafalgar Square which featured a giant model of Kelly Holmes "flying the flag for Great Britain" after her Olympic successes in 2004.

The model was made by Phil Donohue Productions from Bentley's materials.



Hitting the High Notes

Opera may not immediately spring to mind when it comes to plastics, polyurethanes and foams, but Bentley/s products are now gracing the stage of many of the country's leading productions.

The Royal Opera, the English National Opera, Welsh Opera and Glyndebourne are all now using a variety of silicone rubbers, foams, plastics and plasters for major sets, scenery, props and costumes.



Clive Barde Othello - Verdi Royal Opera House

A Frozen 'Trace-Echo'

Designer Geoffrey Mann's series of sculptures entitled "Long Exposure" is attracting international recognition for its unique fusing of technology and tradition. "Bird in Flight" is the second sculpture in

the series and depicts a solid, "trace-echo" of a bird flying, as seen by freeze frame photography.

The original piece, now owned by James Dyson, was created in glass and weighed nearly 60 kilos. It has won both national and international awards and is now being re-created using Bentley's Crystal Clear.

Geoffrey Mann's inspiration came from an unusual place. "When I first came down from Scotland to do my Masters Degree at the Royal College of Art, I saw pigeons everywhere. I



Bird in Flight from the series of sculptures 'Long Exposure', by Geoffrey Mann



watched them repeatedly taking off and landing and it gave me the initial idea. I

wanted to look beyond into a matrix world and capture another dimension."

The third piece in the series Long Exposure captures the frozen trace-echo of a moth's flight around a light bulb.



The Trace-Echo of moth's flight around a light bulb



Paint Base System

It has always been extremely difficult to apply paint to silicone prosthetic rubbers due to their inherent release properties, and to high elongation silicone rubbers, because of their elasticity.

A new Platinum Paint Base System is now available called "**PSYCHO PAINT**". This two part, translucent clear paint can be used to make a base for colour pigmentation and can be thinned with a solvent (Toluene) for use in an air brush, or for hand brush applying.

For optimum results, the silicone skin/surface should be painted as soon as possible after de-moulding. We recommend that the cured piece should be painted within 2 days. Use a liquid silicone pigment or powdered cosmetic pigments and always test for compatibility first.

For adhering platinum silicone prosthetic creations to human skin, use the new grade of adhesive and sculpting medium – "**Skin Tite**." This is an easy to use, translucent clear fluid to adhere platinum silicone appliances (wounds and scars, etc) directly to human skin. The bond is flexible and remains in place for hours, until carefully removed from the skin. Ensure that the surfaces are clean and free from contaminants before applying.

Plasti-Paste

Compared to GRP or plaster cases, **PLASTI-PASTE** is a very quick, light weight, labour saving method for making support cases. It is a polyurethane, fibre-filled material which is high strength and fast drying. It has a low odour, is non-shrinking and easy to use.

Forget polyester gel coat, polyester laminating resin and fibre glass. **PLASTI-PASTE** is an all-in-one product. To apply, you can use a brush or spatula. Once the required thickness is achieved, it can be smoothed with a brush and Acetone.

To apply **PLASTI-PASTE** it is important to stipple onto the object to be cased - this allows the product to flow onto the surface in a smooth manor and reduces the air entrapment as it is applied. It holds vertical surfaces well and is easily shaped to follow any contour.

PLASTI-PASTE is fast drying, but this is no disadvantage as it is possible to build on layers, and it will join to itself. Once one side of a case is complete, it is possible to remove any wall separation and after adding a release agent, to apply the second side of a case mould within one hour.

Low shrinkage means that any multi-part case mould will have engineering quality joints, and will be a better support to any rubber. It can be drilled and bolted together easily and is very strong once fully cured.

For more "Handy Hints" and "How To's" Please visit our website at www.bentleychemicals.co.uk

SFX News

The list of recent productions in film and TV that are using foams, urethanes, plastics and silicones supplied by Bentley is now too long to list ... So here are just a few highlights!

Some of the TV productions are Waking the Dead, Loch Ness, Nip & Tuck, Born and Bred, Breaking & Entering, Family Affairs, 55 Degrees North, Dr Who, Bad Girls - as well as all the usual accident and gore soaps!

Current film productions include The 10 Commandments, Harry



The 10 Commandments film set

Potter, Derailed, Nanny McPhee, Children of Men, Munich, The Da Vinci Code, Mrs Henderson Presents and the new Basic Instinct.



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