Zhermack
Industrial

Silicone rubbers

for industrial applications

Zhermack

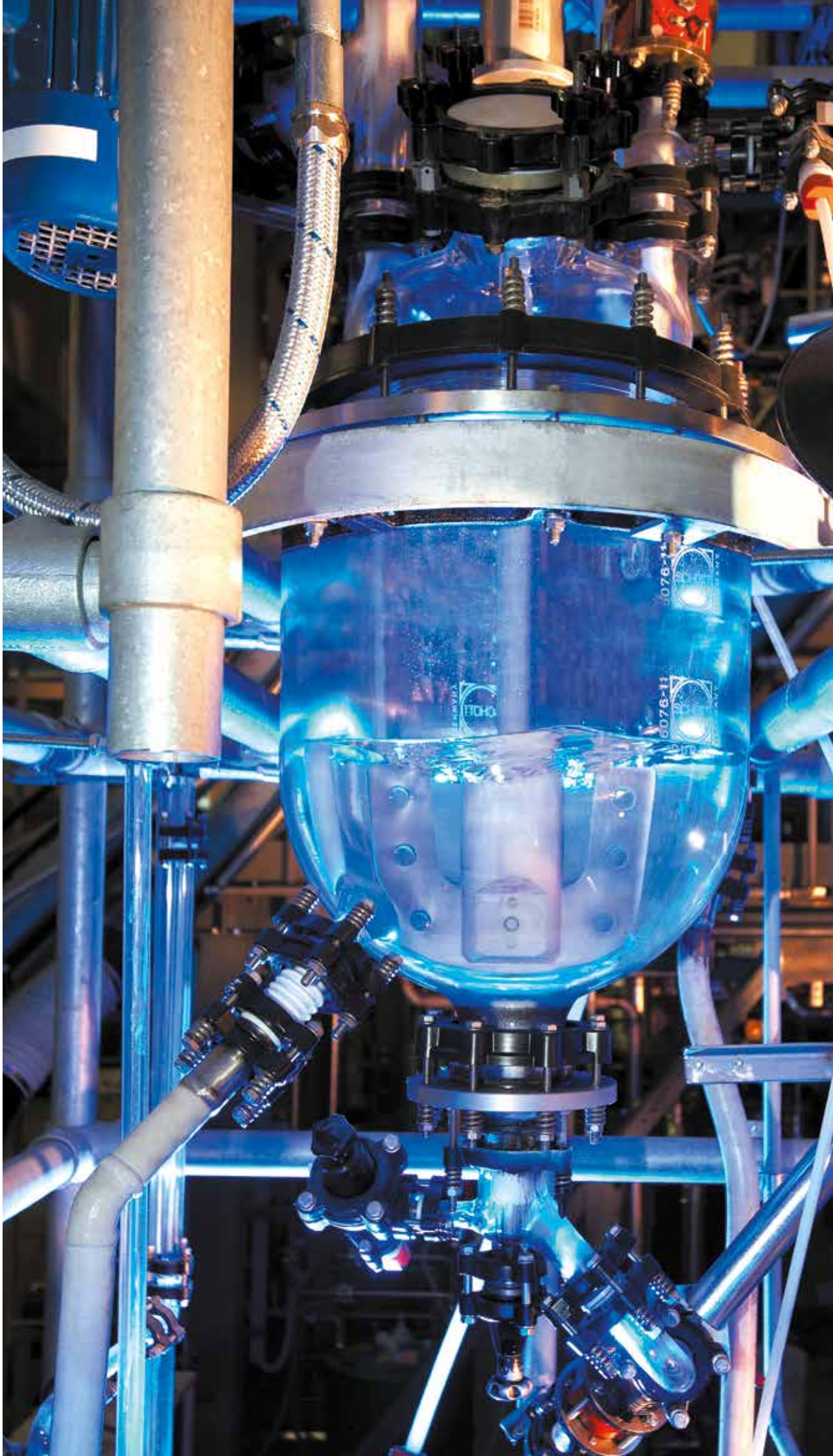
The Zhermack Group has been an active player for 35 years. The group is represented on the international market by three divisions, Dental, Wellbeing and Industrial, all served by an extensive and competent distribution network.

Zhermack has always supplied customers all over the world, and knows that it is essential to understand the unique characteristics of each country in order to offer solutions in line with customers' expectations (which can differ radically from one market to another).

Our international vocation allows us to make full use of innovative processes and to share our know-how with our customers. We believe that teamwork allows us to achieve even the most ambitious objectives.

Our experience in offering specialist solutions is also an effective guarantee of quality for our customers. We maintain full control over the entire production process, from the selection of raw materials to the packaging of finished products. We also manage our own product development, closely supervising every phase in order to act as a unique and reliable partner to our customers.

Fulfilling your needs.



We understand our products

One of our strengths is our ability to control the development, production and quality of all our products. We have our own plant for synthesising raw materials, our own highly structured system for controlling and validating production processes and our own R&D department to customise products to meet specific needs.
As a result we can optimise our entire production system and supply materials that offer truly exceptional performance.

Our expertise in addition and condensation silicone rubbers and alginates allows us to develop solutions capable of satisfying even the most demanding customers.

We serve a wide range of sectors that use silicone rubber, including mould making, rapid prototyping, vacuum bagging, jewellery, ceramics, construction and even cinematic special effects.

We are always close to our customers

Our vast product know-how enables us to respond rapidly to the needs of users and customers, to identify the best possible solutions and to select the most suitable products, whatever the application.

Willing collaboration and open sharing of competence are two of our basic principles, and help us to optimise our production process and ensure the best possible end results. After all, our own success depends on that of our customers.

Mould Making

The reproduction of any object, especially one with a complex shape, is a process that has to be thoroughly understood and also demands suitable materials if a satisfactory end result is to be guaranteed.

Once an original model is available, the next step is to create a flexible, silicone rubber mould that can be used to reproduce the object repeatedly. Time and precision are both of the essence at this stage.
Zhermack supplies RTV2 poly addition silicone rubbers (with platinum catalyst) and poly condensation silicone rubbers (with tin catalyst) for a wide range of industrial applications.

Zhermack's silicone rubbers for mould making guarantee impressive accuracy in the reproduction of details, easy release from the clamp and an extended working life, thanks to excellent dimensional stability and broad-spectrum chemical compatibility.

In particular, our RTV2 poly addition silicone rubbers are highly elastic, have excellent mechanical properties, and are compatible with various types of resin (polyester, epoxy, etc.). We can also supply them oil-free for unrivalled dimensional stability (even for 20 years or more) in contact with stone and cement. Even the standard version guarantees excellent dimensional stability, however.

Our RTV2 poly condensation silicone rubbers are highly fluid, have excellent mechanical properties, and come in a range of hardnesses. They can be cured with a non-inflammable tin catalyst that can be shipped as sea or air freight at no extra cost.

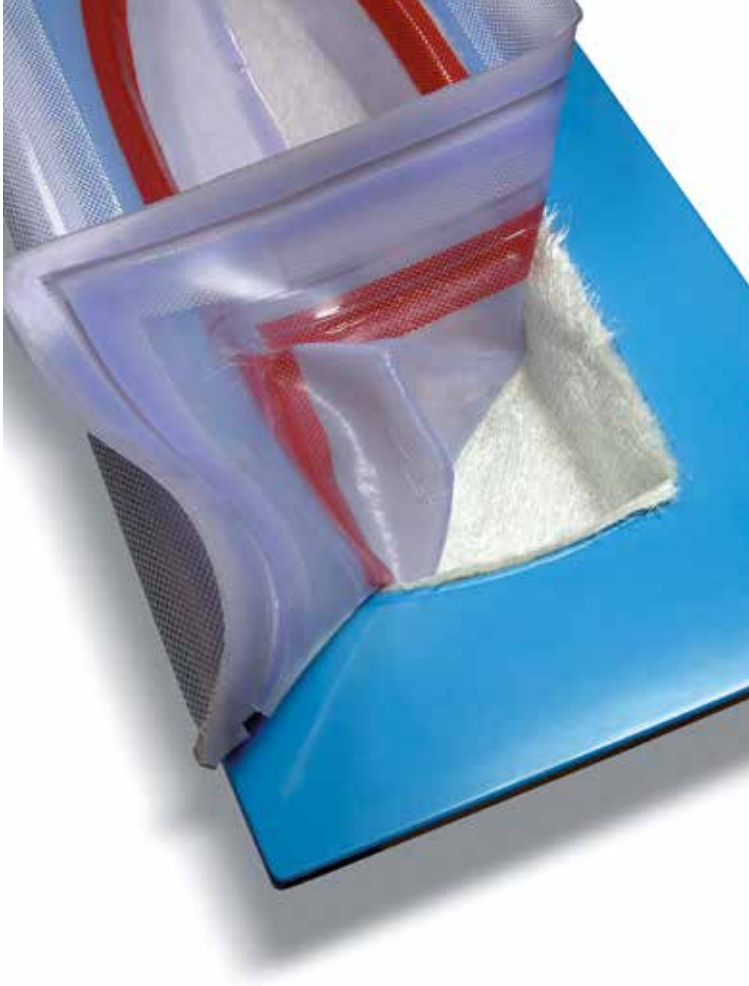
Vacuum bagging

Vacuum bagging is an increasingly common process in composite production. It uses an RTV2 poly addition silicone rubber bag to press elements into shape against the surface of a mould. Vacuum is used both to form the composite material and to draw in the resin that impregnates it. Silicone rubber vacuum bagging moulds can be re-used time and time again and give a perfect surface finish to the formed part.

Zhermack supplies a range of silicone rubbers specially formulated for use in the vacuum bagging processes now common in many areas of industry (automotive, marine, etc.). Our RTV2 poly addition silicone rubbers (with platinum catalyst) deliver:

- Excellent mechanical characteristics
- Short working times
- High elasticity
- Excellent compatibility with most types of resin (polyester, epoxy, etc.)

Our liquid silicone rubber has a hardness of 22 shA and a viscosity that permits it to be used with a mixer-sprayer. Our thixo silicone rubber has a hardness of 22 shA and is slightly thixotropic and therefore ideal for application by spray and brush.



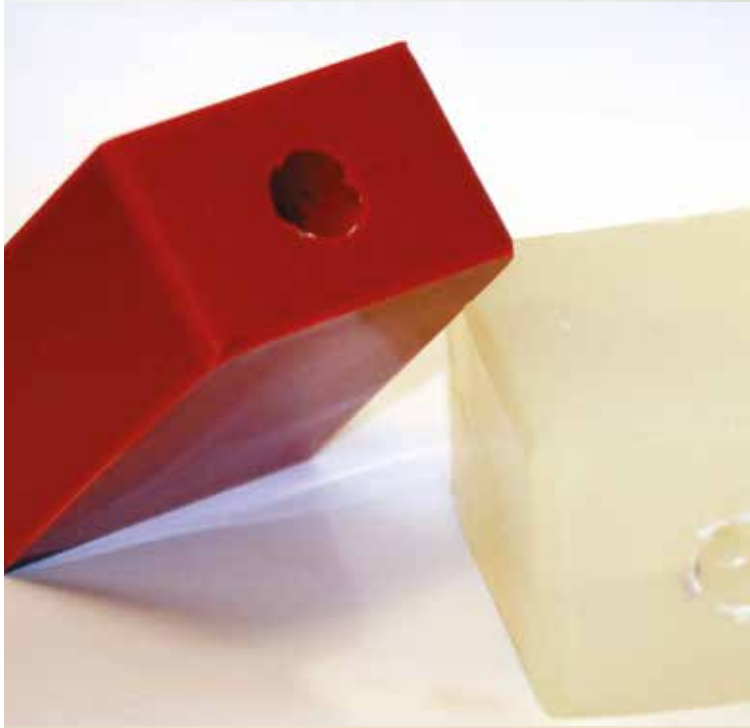
Jewellery

Zhermack RTV2 poly addition silicone rubbers are particularly suited to the lost wax casting process commonly used in the jewellery sector. Silicone rubbers can be used to reproduce a large number of copies from an original master. They allow the tiniest details to be copied faithfully, facilitate finishing and are highly compatible with the materials typically used in jewellery.

The excellent dimensional stability of Zhermack silicone rubbers' makes them suitable even for the luxury jewellery market, where the highest standards of quality are demanded. Moulds can be used for over 20 years if properly preserved.

Our silicone rubbers are available in a choice of colours: clear (for users who prefer to see the master object inside the silicon rubber during the cutting phase) and coloured (for more expert users).

The chemical characteristics of Zhermack silicone rubbers make release of the formed article particularly easy, something that is extremely important in this kind of application. Hardnesses of 33 shA, 45 shA and 50 shA are available. The choice of hardness depends on the shape of the wax object and on the pressure at which the wax is injected.



Rapid prototyping

Silicone rubber moulds are often used to make prototypes of new products. Stereolithographic masters are used to create silicone rubber moulds, using suitable thermosetting resins.

The mechanical and thermal properties of these resins are similar to those of the thermoplastic materials used in the production of the finished part. This means that prototypes are not only faithful reproductions of the original master, but can also be used for functional tests, and provide a valid basis for preliminary sample testing.

For rapid prototyping applications, we offer transparent materials with a hardness of 42 shA in DRY and OIL BLEEDING versions (for increased resistance to particularly aggressive substances like PU resins). We also supply translucent silicone rubbers with low viscosity and high tear resistance for the prototyping of small, precision parts.

Special effects

Zhermack supplies the cinema industry with the silicone rubbers and alginates it used to reproduce parts of the body and facial features for special effects (masks, wounds, the application of special effects to actors, etc.) and to reproduce special scenery and settings.

Easy working, ductility, and the possibility of using a wide range of specific colour pigments are the key benefits we offer to users in the film industry.

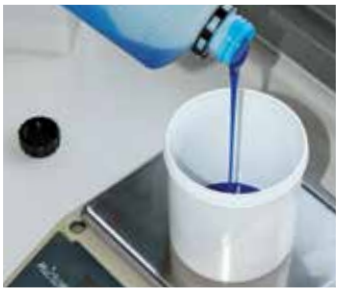
Zhermack products
for industrial applications

1. Technical characteristics

Zhermack's RTV2 poly addition silicone rubbers deliver:

- Excellent mechanical characteristics (flexibility, tear resistance)
- Excellent dimensional stability (shrinkage of addition silicone rubbers < 0.1%; shrinkage of condensation silicone rubbers < 1%)
- Extra-long working life
- High precision in the reproduction of details and undercuts
- Compatibility with a wide range of materials (resins, plastics, waxes, cements, metals, etc.) and biocompatibility
- Resistance to extreme temperatures (-40° C / 210° C)
- Ease of use (no heat needed as Zhermack silicone rubbers vulcanise at room temperature)

2. Instructions for use*



Weigh out an equal quantity of base and catalyst (e.g. 100 g of catalyst and 100 g of base; the end result is not affected by errors of up to 5%)

*Except XTX 45 which requires a mixing ratio of 10:1.

Mix vigorously until the product assumes a uniform colour. Once the product is thoroughly mixed, pour it, preferably from 30 cm above the container, on to the one spot (this makes it easier for air to escape from the mix). **These instructions apply only to RTV2 poly addition silicone rubbers.**

3. Packs

Zhermack products are available in the following packs, to meet the needs of different users:

CONDENSATION SILICONE RUBBERS	
Packs	**Packaging**
200 kg + 10 kg	
20 kg + 1 kg	
5 kg + 250 g	
1 kg + 50 g	

ADDITION SILICONE RUBBERS	
Packs	**Packaging**
200 kg + 200 kg	
25 kg + 25 kg	
5 kg + 5 kg	
1 kg + 1 kg	

4. Accessories

Zhermack silicone rubbers can be supplied with the following accessories:

- Thixotropizing agents for addition and condensation
- Retardants for extending the workability of addition silicone rubbers
- Primers for bonding poly addition silicone rubbers to steel and aluminium
- Concentrated colouring pigments
- Silicone oils

Technical sheet

Addition silicone (PLATINUM curing agent)

Name	Colour	Main Applications	WT (@ 23°C)	ST (@ 23°C)	Hardness (ShA)	Visc (cP)	Tear (N/mm)
ZA 0F1	translucid	Special Effects, electronic use	10'-13'	1h	gel	1.000	-
Properties: gel							
ZA 35-15 GLASS	transparent	Special Effects	45'	6h	20	200	-
Properties: very liquid and transparent							
ZA 00 Translucid	translucid	Podiatry, special applic.	6'	50'	0 shA/40 sh00	1.500	5
Properties: softness, good mechanical properties, isolating and dumping properties							
ZA 4 LT	red	Podiatry, special applic.	10'	1h30'	4	1.800	7
Properties: softness, good mechanical properties, isolating and dumping properties, High elastic return.							
ZA 8 LT	translucid	Podiatry, special applic.	15'-18'	2h30'	8	1.000	4
Properties: softness, dimensional stability, precision in reproduction, dumping properties							
ZA 13 Mould WT45	translucid	Mould making	45'	4h	13	4.500	10
Properties: low viscosity, high mechanical resistance, dimensional stability, precision in reproduction							
ZA 22 Mould	blue	Mould making	15'	1h	22	4.000	20
Properties: low viscosity, high mechanical resistance, dimensional stability, precision in reproduction							
ZA 22-45 Mould Neutro	whitish	Mould making	45'	7h	22	4.000	20
Properties: low viscosity, high mechanical resistance, dimensional stability, precision in reproduction							
ZA 22 WT3 Spray	light blue	Vacuum bagging	3'	30'	22	4.000	11
Properties: the product have to be used by spray. Ideal for vacuum bagging or for impression of vertical surface							
ZA 22 Thixo Body	pink	Body casting	6'	15'	22	> 50.000	14
Properties: thixotropic, compatibility with skin, dimensional stability, high mechanical properties, high resistance to ageing							
ZA RTV 30-60	white	Mould Making	70'	10h	30	6.000	18
Properties: low viscosity, dimensional stability, high mechanical resistance, precision in reproduction							
HT 33 Transparent	translucid	Mould Making, Jewellery	20'	3h	33	7.500	16
Properties: low viscosity, dimensional stability, precision in reproduction, high mechanical resistance, durability.							
ZA 35 Mould	yellow	Mouldmaking	15'	1h	35	4.000	8
Properties: low viscosity, dimensional stability, precision in reproduction							
ZA 35 Mould Fast	light green	Mouldmaking	6'	20'	35	4.000	8
Properties: low viscosity, dimensional stability, precision in reproduction							
MARK Plus (*)	green	Mould making	10'	2h 30'	37	-	6
Properties: recommended for vertical moulding, precision in reproduction							
HT 45 Transparent	translucid	Mould Making, Jewellery	10'	1h20'	45	8.000	19
Properties: high mechanical resistance, dimensional stability, precision in reproduction							
ZA 50 LT	blue	Mouldmaking	15'-20'	3h	50	20.000	12
Properties: good mechanical resistance, dimensional stability, precision in reproduction, resistance to high temperature							
XTX 45 DRY	transparent	Rapid prototyping	90'	15h	42	35.000	> 20
XTX 45 OIL BLEEDING	transparent	Rapid prototyping	90'	15h	42	50.000	> 20
Properties: high transparency adapt for rapid prototyping, high mechanical properties. Two version: DRY and OIL BLEEDING (suggested for the resin).							
ZAX 60	blue	Mouldmaking	60'	24h	60	100.000	10
Properties: good mechanical resistance against epoxy resins, PU resins, Polyesther resins and PU foam.							
ZAX 70	blue	Mouldmaking	60'	24h	68	140.000	10
Properties: good mechanical resistance against epoxy resins, PU resins, Polyesther resins and PU foam.							

Condensation silicone (TIN curing agent)

Name	Colour	Main Applications	WT (@ 23°C)	ST (@ 23°C)	Hardness (ShA)	Visc (cP)	Tear (N/mm)
ZC 20-120	Whitish	Mould making	90'	24h	21	24.000	17
Properties: low viscosity, high mechanical resistance.							
ZC 30-120	Whitish	Mould making	90'	24h	30	27.000	17
Properties: low viscosity, high mechanical resistance.							

Body casting alginate

Name	Form	Colour	Main Applications	Mixing Ratio (water/powder)	ST (@ 23°C)
AL PR	Powder	light blue	Body Casting	2 part water /1 part powder (weight)	2'30"-3'
Properties: precision in reproduction, recommended for impressions, bio-compatible					
AL MT	Powder	whitish	Body Casting	2 part water /1 part powder (weight)	9'-13'
Properties: precision in reproduction, recommended for impressions, bio-compatible					











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