



# Silicone

**RTV Silicone** (Room-Temperature-Vulcanizing silicone) is a type of silicone rubber made from a two-component system (base plus curative; A+B) available in a hardness range of very soft to medium--usually from 15 to 40 Shore hardness.

RTV silicones can be cured with a catalyst consisting of either platinum or a tin compound such as dibutyltin dilaurate.

Applications include low-temperature over-moulding, making moulds for reproducing cast items.

We sell a wide variety of RTV Silicones depending on application.

The first group are the condensation cure silicones, these are thinner, pourable and have a longer pot life than the addition cure group.

## **RTV-101:**

A red pourable rubber ideally suited to casting low metal metals and alloys – especially suited for our Centricast Machine.

This makes it also ideally suited to centrifuge casting of resins.

RTV-101 is ideal for flexible moulds where there are no deep undercuts, it has a higher resistance to heat than other silicones.

RTV-101 is catalysed with our CA28 catalyst at around 0.3-0.5% (9-15 drops per 100 grams of rubber) we strongly advise accurately weighing both the silicone and the catalyst using digital scales.

RTV-101 has a Shore A hardness of 55

Pot life is around 40-80 mins (depending on catalyst) and a cure time of around 5-6 hours.

## **SE-2005:**

Free flowing white silicone rubber which cures to a firm but low strength mould, ideal for hand casting and jewellery applications with minimal undercuts.

SE2005 can be used with some of the low melt alloys, but is more typically used for casting wax items.

SE-2005 is catalysed with our CA28 catalyst at around 0.3-0.5% (9-15 drops per 100 grams of rubber) we strongly advise accurately weighing both the silicone and the catalyst using digital scales.

SE-2005 has a Shore A hardness of 16

Pot life is around 60 mins and a cure time of around 24 hours.



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## **RTV-T20:**

The T20 range of RTV silicones are a high strength two part condensation cure silicone. Easy to mix and pour T20 is ideally suited to block moulding and skin moulds with a high undercut.

T20 silicone is suitable for plasters, ciment fondu, waxes, epoxy, polyester and polyurethane resins.

T20 is available with two catalysts – the standard T6 and a faster T5 catalyst. Catalysts should be mixed at 5% by weight and mixed thoroughly – care should be taken not to overmix or to aerate the mixture – we strongly advise accurately weighing both the silicone and the catalyst using digital scales.

Shore A hardness of 16 – T20 can also be mixed with our Thixo-Additive

Pot Life (T6) 100 mins and a cure time of 24 hours.

(T5) 30 mins pot life and a cure time of 5-7 hours.

## **RTV-T25:**

T25 was developed especially for Tiranti, this is a medium grade high strength silicone with similar properties to T20 but with a Shore A hardness of 25.

Although T25 can be mixed with Thixo-Additive, we advise instead that thixo mixes be done with either T20 or T28 silicone – the longer curing time (no fast catalyst) alone means that the product is less versatile than its cousins.

T25 can be used with T6 and T5 catalyst at 5% by weight.

We strongly advise accurately weighing both the silicone and the catalyst using digital scales, care should be taken not to overmix or to aerate the mixture.

You will find that the silicone appears to be quite stiff and even look as though it is “going off” – however simply stirring the mixture in a “folding” action will quickly return the compound into a pourable silicone.

Pot Life with T6 catalyst is around 60 mins and a cure time of 18-24 hours.

T5 catalyst reduces the pot life to around 20 minutes and reduces the cure time to around 12 hours.

T25 silicone has a much longer curing time than its two cousins – it is especially suited to working with Concrete casting.

The silicone has inhibitors developed to resist the various chemical issues associated with concrete and cement.



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## **RTV-T28:**

The hardest of the T20 range of silicones with a Shore A hardness of 28.

Ideally suited to making up skin moulds using Thixo-Additive – the mixture turns the silicone a pale pink in colour and changes its properties to a brushable no slump moulding rubber.

T28 is also available with two catalysts – the standard T6 and a faster T5 catalyst. Catalysts should be mixed at 5% by weight and mixed thoroughly – care should be taken not to overmix or to aerate the mixture – we strongly advise accurately weighing both the silicone and the catalyst using digital scales.

Pot Life (T6) is around 100 minutes and a cure time of around 6 hours.

(T5) 30 minutes pot life with a cure time of around 6 hours.

## **Thixo-Additive:**

A clear addition liquid which transforms T20 series (T20 and T28) silicone rubber into a thicker, non-slump, brushable mix.

Allows modellers to brush the silicone into the details of a pattern, enables every detail to be picked up.

Ideal for building skin moulds, but also for gel coat mould layers.

Thixo-Additive can be added in additional layers to improve the mould strength.

Typically these skin moulds can be strengthened using plaster bandage, applied over the setting "thixo" layers.

Once the plaster bandage layer has set, it can be carefully removed and then the silicone mould prised off the pattern piece.

The modeller can then reassemble the plaster support around the silicone mould and pour an appropriate casting material into the mould.

## **Other Silicones We Sell:**

Addition Cure type silicones (also called platinum cure due to their bright white colour and because they utilise platinum as an active ingredient), are often considered simpler to use because it is a two part mix in equal quantity and doesn't require scales to measure out the catalyst.

Addition cure silicones however are not as versatile as the condensation cure silicones and are much faster setting.

This can make them harder to use for larger mouldmaking applications.

Addition Cure silicones are a two part cured silicone mixed in equal parts (Part A and Part B), these are susceptible to moisture, sulphur and oil damage which can not only damage the cast but also cause issues with the rubber not curing correctly.



# Silicone

## **MM-730 (Food Safe):**

A flexible addition cure type silicone developed for food type applications, ideally suited to handling both aqueous and fatty foodstuffs and approved by the Food Standards Association and the FDA.

Shore A hardness of 30.

Pot Life is around 60 mins (at approx.. 23 degrees C) and a cure time of 24 hours.

## **T40 (FAST):**

A thick fast setting two part addition cure silicone T40 is ideally suited to taking moulds from vertical surfaces and also for life-casting applications with resins (epoxy, polyester or polyurethane), T40 is NOT suitable for plaster, or chavant type clays.

When using for life casting it is wise to do a skin test - but also to use barrier creams – silicone must NOT come into contact with eyes or mouth.

Shore A hardness of 40.

Pot Life is **90-120 secs** (at approx. 20 degrees C) and cure time of 24 hours.

## **Addition Cure 13 (AC-13):**

Very soft translucent two part silicone, ideally suited to applications which require a high level of precision reproduction.

Great for clear cast applications in particular.

Shore A hardness of 13.

Pot Life of 45 minutes and a cure time of 4 hours.

## **Addition Cure 33 (AC-33):**

A medium firm translucent white silicone with high resistance to aggressive components of some resin types – particularly good for casting thin frame components such as railway model parts in polyester or polyurethane.

Shore A hardness of 33.

Pot Life of 20 minutes and a cure time of 3 hours.



# Silicone

## **Addition Cure Thixo Additive:**

Developed for AC-13 and AC-33, used in a 1% (by weight) ratio into the Part A component before adding the Part B – turns the addition cure into a brushable non slump silicone that can be brushed into detail – ideal for vertical or immovable objects. Allows a thickness of upto 5 mm to be applied in a single layer.

Additional layers can be added to thicken the mould while the first layer is still tacky.

## **Putty Silicone:**

A two part condensation cure type silicone compound ideally suited to taking moulds from immovable vertical objects such as civic or monumental restoration items.

Pot Life of around 15 minutes and a cure time of 60-70 minutes using between 5 and 10 % catalyst.

## **Silcoset 152:**

A single part silicone adhesive sealant for repairing silicone moulds.

Silcoset is very similar in makeup to bathroom and “instant gasket” sealants and uses an acetic acid based catalyst vulcanising compound – this only becomes active when exposed to ambient air.

## **General:**

Silicone is a very versatile and easy product to use – ideal for taking mouldings from solid objects, it is less suitable for body moulding because silicone is susceptible to oil and water damage until cured, although specialist body moulding silicones are available (MM730).

At Alec Tiranti we are always happy to offer help and advice on projects however large or small, we don't pretend to know everything but, we can often put you in touch with other specialists that can help you.

We have people here at Thatcham and also at our shop in Warren Street who have a wide experience using a variety of silicone products.

They are on hand to give informed technical advice for many applications and we can call on others for specialist help too.

The issue with silicones is basic chemistry, there are rules which MUST be followed.

There are a number of issues which can cause problems with silicones and most of these start by not following the basic rules.

Silicones actively repel both oils and water – all surfaces must be clean and dry.

Silicones react to heat and cold, so avoid extremes of both while mixing, pouring and moulding using silicone.



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Over catalysing can cause extreme issues, the silicone can react by breaking up (appearance similar to cottage cheese) or part catalysing (soft on the outside and hard in the middle).

## **Mixing Guide:**

Type Number	Grade	Pot Life	Cure Time	Shore A Hardness	Shrinkage	Colour	Tear Strength	Used With Thixo
RTV 101	hard	3% Cat = 80 mins 5% Cat = 48 mins	24 hrs 5-6 hrs	55	0.2%	Red	4.5 mPa	NO
SE 2005	Med/Hard	60 mins	24 hrs	40	0.5%	White	2.0mPa	NO
Putty Silicone	Soft/Med	15 mins	60-70 mins	16	0.5%	Grey	NA	NO
Silcoset	Soft	5-10 mins	2 hrs	12	1-2%	White	NA	NO
T20+T6	Soft/Med	100 mins	24 hrs	16+/- 3	0.6%	Grey Off White	21	Yes
T20+T5	Soft/Med	30 mins	5 hrs	16+/-3	0.6%	T5 causes it to turn pink	21	Yes
T28+T6	Med	100 mins	24 hrs	28	0.6%	Grey Off White	20	Yes
T28+T5	Med	30 mins	6 hrs	28	0.6%	T5 causes it to turn pink	20	Yes
T25	Med	60 mins	18 hrs	25	0.6%	White	20	
T40	Med/Hard	90-120 secs	8-10 mins	40	NA	Pale Pink	7.5-13	NA
MM730	Med	75 mins	7 hrs	30	0.08%	Off White	25kN/m	NO
AC13	Soft	45 mins	4 hrs	10-13	0.05%	Translucent	14	*
AC33	Med	20 mins	3 hrs	30-33	0.05%	Translucent	16	*

\*Thixotropic Additive for addition cure silicones is different to the condensation cure version but acts in a similar fashion – you can not use Condensation Cure Thixo Additive for Addition Cure Silicones, or vice versa.