



Porous pressure resin for the ceramic industry

Technical specifications

2-component casting resin system for manufacturing porous pressure die cast moulds.

Scope of application

Working moulds for medium and high pressure casting.

Storage requirements of the individual components

Closed packing drums can be stored for at least 6 months at approx. 20 °C, protect from heat, moisture and frost.

Casemould preparation

Apply suitable release agent on the casemould and, using a soft cloth, distribute evenly over the surface, carefully polish after about 15 minutes. Repeat this procedure 1 – 2 times.

Information on the Composition of Porous Pressure Resin

The main components are classified as follows:

Name:	LT	Water	AP	MA	GP
Specification:	Aqueous liquids	Tap water	Active powder	Organic liquid	Inert granules

	Water	AP	MA	GP	-	LT
Percentage	23,5	38,5	17	21	= 100	+ 0,24

Given the size of the casemould, the required quantity of mould material must be determined based on the volume and calculated as follows.

Mould material quantity = Volume * 1,11 g/l (specific weight of mould material)

Example:

250 kg mould material – determine volume of the casemould using the water method (gauging capacity in litres).

$$221 * 1,11 \text{ kg/dm}^3 = 245,3 \text{ kg}$$

To simplify the calculation, the value is rounded up to 250 kg.

Calculation for 250 kg resin

Water:	23,5 %	=	250 * 23,5 %	=	58,75 kg
LT	0,24 %	=	250 * 0,24 %	=	0,60 kg
AP entire	38,5 %	=	250 * 38,5 %	=	96,25 kg
MA	17 %	=	250 * 17,0 %	=	42,5 kg
GP	21 %	=	250 * 21,0 %	=	52,5 kg

AP entire consists of

AP	=	96,25 * 0,9852	=	94,825 kg
AP4	=	96,25 * 0,0148	=	1,425 kg

The percentages of the individual components (water, AP, GP, MA) may be varied slightly corresponding to the requirements relating to the pressure die-cast moulds.

Processing Instructions

STEP 1: Mixture I

- 1.1 Take 23.5% water and add 0,24% **LT**.
- 1.2 Weigh 38,5% of **AP entire** (consisting of AP and AP4) and slowly mix into the water-**LT** solution.
- 1.3 To ensure complete wetting of the powder and for ventilation purposes, it is advisable to wait at least 30 minutes while stirring slowly from time to time (about every 10 minutes for 1 minute) to avoid sedimentation.

STEP 2: Mixture II

- 2.1 During the waiting period described under 1.3, weigh the remaining two components **GP** (21,0%) and **MA** (17,0%) in separate containers.
- 2.2 After having checked that the casemould is well prepared (fixing of frame, polishing of surface etc.), prepare a container (tub, vessel) in advance that can accept the mixture I and II.
- 2.3 Add MA to the container as described under 2.2 and add GP while stirring slowly. Continue stirring for 2.5 minutes.

STEP 3: Casting mixture

Following this period of 2,5 minutes, **mixture I** is poured in quickly and without interruption in **step 2/2.3** and continue stirring for a further 40 – 60 seconds using a corresponding stirrer.

STEP 4: Casting process

Following step 3, the casting mixture is poured into the casemould slowly and without interruption in order to avoid air inclusions. The lid is then immediately fitted on the casemould. The rods or the lid must be pulled vertically when hardening (curing) begins.

Attention – Further Important Information

1. The processing temperature of the components water, AP, GP, MA must be within the range of 16 – 20 °C. The casting temperature of the mixture must be 17 – 19 °C.
2. The room temperature during processing should be 19 – 20 °C.
3. The temperature of the casemould should be approx. 25 °C.
4. The preparation facility should be designed such that the casting procedure can be started 40 seconds after the end of stirring in step 3 at the latest.
5. To produce a mixture with a total quantity of up to 300 kg we recommend the use of a 3-paddle stirrer with a diameter of 300 – 500 mm depending on the material quantity. The stirring vessel should have a maximum diameter of 800 mm and a height of 1000 mm and slightly taper off conically in the base area.
6. The rotary speed of the stirrer should be approx. 400 – 700 rpm (depending on the type of stirrer).
7. A smaller container with a volume of approx. 150 ltr is used for mixture I.
8. Reaction time: approx. 50 – 60 minutes depending on processing and ambient temperature
9. Reaction temperature: approx. 65 °C depending on the amount of the component MA as well as on the processing temperature and ambient temperature.
10. Removing from mould: After the maximum reaction temperature has dropped, place together and clamp the two halves of the mould, place in water at a temperature of about 60 °C. Allow the mould to cool down together with the water.
11. Final strength: After approx. 12 hours
12. Hazard warning: The resin component is easily flammable.
13. Protection and safety measures: Ensure the workplace is adequately ventilated. Avoid contact with the skin, wear a protective mask. No smoking.
14. Storing moulds: Moulds that are not in use are to be stored moist in connection with the use of a preservative.