



**Q. What is Chromat?**

The product "Chromat" consists of decorative filler granules which are used in the manufacture of acrylic and polyester solid surface products. Chromat is NPG Isophthalic based granules which is pigmented and filled with high-purity grades of Aluminium Trihydrate (ATH). Chromat granules are cured in a high temperature oven system, reaching temperatures of over 180°C for optimum stability and hardness.

**Q. What are the applications of Chromat?**

- Open mould casting; in the production of solid surface sheets, tables, counter tops, vanity bowls etc.
- Spraying granite effect.
- DMC & SMC/compression moulding; in the production of kitchen sinks.
- Epoxy flooring.

**Q. Is there a set formulation for the matrix used in solid surface?**

There is one generic formulation which is normally used as a guideline:

Casting resin	30%
Solids (ATH & Chips)	70%

This formulation however, may be altered depending on the followings:

- Viscosity of the resin
- Particle sizes in Chromat which affects the viscosity or the grades of ATH which has a similar effect on viscosity.
- Percentage of Chromat to the matrix which is adjusted to achieve the desired pattern and colour.

**Q. What is the bulk density of Chromat?**

The average bulk density of Chromat is 1080g/litre. However the bulk density changes depending on the design (percentage of different particle sizes used in the formulation of chips used in a design). In some colours the bulk density may be as low as 800g/litre. In others in may be as high as 1140g/litre.

**Q. How does knowing the bulk density help?**

It is important to know the bulk density of chips and ATH to be able to do accurate costing and raw material requirement for the make-up of the matrix.

For example:

		Formulation	Usage	Unit cost	cost/item
Resin	1.10 (specific gravity)	36%	0.396	2.00	0.720
ATH	2.50 (bulk density)	39%	0.975	0.70	0.273
Chromat	1.08 (bulk density)	25%	0.270	4.00	1.000
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			1.641 kg		1.993 cost per kilo

This means a litre of matrix would weigh 1.621kg and would cost 3.22.

Therefore, the weight and the cost of a casting of 1m<sup>2</sup> in the thickness of 12mm is determined as follows:

1 x 1 x 12 = 12

12 x 1.641 = 19.692 (weight)

19.692 x 1.993 = 39.246 (cost)

Taking the above numbers further to calculate the raw material requirement for the production of 100 units it would be calculated: 100 x 19.692 = 1969.20 kilos

Resin requirement: 1969.20 x 0.36 = 708.912 (kilos of resin)  
708.912 x 2.00 = 1417.824 (cost of resin)

ATH requirement: 1969.20 x 0.39 = 767.988 (kilos of ATH)  
767.988 x 0.70 = 537.592 (cost of ATH)

Chips requirement: 1969.20 x 0.25 = 492.300 (kilos of Chromat)  
492.300 x 4.00 = 1969.200 (cost of Chromat)

Therefore: Total cost of raw materials for producing 100 units of 1m<sup>2</sup> in the thickness of 12mm would be 3924.616.



**Q. How many grades of Chromat are there?**

There are five standard grades:

Small	with maximum particle size of 700µ microns	(average bulk density 1140g/litre)
Medium	with maximum particle size of 1200µ microns	(average bulk density 1040g/litre)
Large	with maximum particle size of 2000µ microns	(average bulk density 1060g/litre)
Extra large	with maximum particle size of 5000µ microns	(average bulk density 1048g/litre)
Ultra large	with maximum particle size of 8000µ microns	(average bulk density 1036g/litre)

**Q. Why does a casting look cloudy?**

This symptom is apparent when the matrix contains too much resin. Another cause is the settlement of the particles; settlement may occur if the viscosity of the matrix is too low or the gel time is too long or the ratio between the resin and the solids is incorrect. This creates a resin rich surface on the back of the casting or the front of it or sometimes, both. Unbalanced formulation is also one of the causes of warping.

**Q. Why is the end product soft and easily scratched?**

Under cured product! If a casting does not reach the required peak exotherm and is not post cured thereafter, it would remain soft and prone to scratches.

**Q. How is the formation of air bubbles prevented?**

Air bubbles are introduced to the resin during mixing. However, the matrix can be made in a vacuum mixer which mixes the matrix whilst removing the air. Alternatively (for small quantities only), all the ingredients can be mixed together first in a normal open top mixing pot, and vacuumed afterwards. Batch mix/vacuuming will remove most of the air bubbles, but not all of them. In this case the mould could be placed on a vibrating table and the matrix could be poured into the mould whilst it is being vibrated.

**Q. How long should the matrix be vacuumed and vibrated?**

Vacuuming would depend on the viscosity of the matrix, the volume of the material that is being vacuumed and also the strength of the vacuum pump. Calculations should be made in conjunction with the recommendations from the manufacturer of the vacuum unit. Length of vibration of the matrix is dependent on the thickness of the unit being produced. But in general, throughout the duration of the pouring and up to 2 minutes after the mould has been filled up with the matrix.

**Q. Which grade of ATH is most suitable for casting with Chromat granules?**

We recommend TLV103 or TLV107 from TP&T in the Netherlands or suitable alternative.

**Q. What is the mixing procedure?**

Firstly Resin (with pigment if required), then ATH, then Chromat, then Catalyst

**Q. Which catalyst and at what ratio is it used?**

A medium reactivity catalyst such as Luperox K1 or equivalent is suitable for most applications. Recommended catalyst level is 1 - 1.5% to the weight of the resin content. The percentage is also dependent on the thickness and the shape of the item being cast. Appropriate gel time should be obtained by testing.

**Q. What is the mixing and curing time-table for a typical casting?**

Mixing:	10 minutes
Gel time:	10-15 minutes at 17-25°C
Cure time:	3 hours at 17-25°C
Post cure:	24 hours at room temperature followed by 4 hours at 80°C

**Q. Can Chromat be used with standard safety precautions?**

Yes. Consult the Safety Data Sheet for details.

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