

Elvacite[®] Acrylic Resins

Reactive Flooring

The formulation of reactive flooring involves a resin dissolved into a “syrup” with monomers (MMA and flexibilising monomers), crosslinkers, and a catalyst. The end user would then add the filler (quartz or sand) and the initiator (peroxide) before application. The typical peroxide level used is 2%, based on the monomer content. A typical coated system would include a primer, mid-coat, and a sealer, and general guidelines are given below to enable successful formulation of this type of system, which will cure at temperatures down to -10°C or even lower.

Primer

Usually, a hard Elvacite[®] acrylic resin is used as in the starting point formulation below:

Elvacite [®] 2008C	28%
MMA	69%
N,N-dimethyl-p-toluidine	0.5 - 1.0% (level depends on application temperature)
Butanediol dimethacrylate	3%

Main Coating

Usually a softer resin is used, and fillers are graded depending on the film thickness needed. Pigments need to be chosen carefully, and the best results are obtained with inorganic colours.

The basic SYRUP (which must be tested for shelf-life stability) is made up as follows:

Elvacite [®] 2697	25%
MMA	55 - 70%
n-butyl acrylate	0 - 30% (to modify the flexibility of the system)
2-ethyl hexyl acrylate	0 - 30% (to modify the flexibility of the system)
N,N-dihydroxyethyl-p-toluidine	0.5 - 1.0% (level depends on application temperature)
Ethylene glycol dimethacrylate	2.5%

Starting point Main Coating formulations then include the following:

a) Self-levelling smooth finish

SYRUP (from Page 1)	65%
Quartz flour	30% (e.g., Silica Flour 200, AGSCO Corporation)
Pigment	4.9%
Cab-O-Sil M5	0.1%
N,N-dihydroxyethyl-p-toluidine	0.5 - 1.0% (level depends on application temperature)
Ethylene glycol dimethacrylate	2.5%

The formulation above is for thin (<3mm coatings); if a thicker coating is required then the quartz flour used may be partially replaced by sand (e.g., Congleton HST95, WBB Minerals).

b) Trowelable finish

SYRUP (from Page 1)	25%
Coated filler	75% (e.g., Granucol - KG range, Dorfner)
N,N-dihydroxyethyl-p-toluidine	0.5 - 1.0% (level depends on application temperature)
Ethylene glycol dimethacrylate	2.5%

The formulation above is used for coatings of 3-6 mm.

Elvacite® 2971C may be used in the main coating, instead of Elvacite® 2697 (re-formulation may be required due to the higher viscosity). The potential advantages are higher gloss/ build and higher abrasion resistance.

Sealer

Usually a hard resin is used, e.g., Elvacite® 2021C

Elvacite® 2021C	25%
MMA	75%
N,N-dihydroxyethyl-p-toluidine	0.5-1.0% (level depends on intended or foreseen application temperature)
Ethylene glycol dimethacrylate	2.5%

The formulation above is applied in thin films and is prone to oxygen inhibition of curing. This effect may be reduced by the addition of a wax to the sealer. Good results have been obtained with paraffin waxes or wax based solutions (e.g., BYK S-750N).

For further information or samples, please contact your local distributor, or:

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