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TITLE: Waterproofing of underground structures with synthetic materials

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TEXT: Compositions recommended for waterproofing the inner surfaces of concrete linings of underground structures are given in the table below. The surface is first cleaned, the first coat is applied and the second and third coats are applied at two-day intervals. A silvery vitreous finish is produced. The following epoxide paints may also be used: first coat grade ЭП-55 (EP-55) diluted with equal parts of solvent Р-5 (R-5); second coat filler Э-4020 (E-4020) or Э-4021 (E-4021); and third coat enamel ЭП-56 (EP-56) diluted with thinners to suit spray gun. The hardener used is a 50% solution of hexamethylenediamine in ethanol. The filler is applied a day after the first coat, and two days later one or two coats of top coat are applied. If applied to the concrete on the side opposite the water pressure, these materials

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withstand a hydrostatic pressure of 5 - 6 atm, and if on the same side as the water pressure, 8 - 12 atm or more. The coatings are strong, but waterproofing breaks down if cracks of 0.4 mm appear in the concrete. If fibreglass cloth is applied, waterproofing is maintained until cracks of 1.5 - 4 mm appear in the concrete. The same fire and health safety precautions apply as with paints using volatile solvents. In view of the falling costs of epoxy resins the cost of waterproofing a square metre of concrete, including labour, materials and equipment costs, should not exceed 1 rouble 80 kopecks, which is much less than conventional methods. There are 1 figure and 1 table.

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Component	Parts by weight in coating		
	Under-coat	Second coat	Covering coat
Epoxy resin grade ЭД-6 (ED-6), ЭД-5 (ED-5), ЭДФ-1 (EDF-1), ЭДФ-3 (EDF-3), or epoxy 1200* ...	100	100	100
Acetone (solvent) for:			
ED-5, EDF-1, and epoxy 1200 ...	60	20	20
ED-6, ED-3 ...	100	25	25
Polyethylene-polyamine (hardener)..	10	10	10
Dibutylphthalate (plasticizer) ...	5	7	7
Aluminium powder ...	-	-	10

* Imported from Czechoslovakia

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