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TABLE 1

Raw materials for concrete admixtures and indirect materials

Type of admixture	Raw materials
Concrete plasticizers	Lignosulphonates and, in some cases, additions of melamine sulphonates and naphthalene sulphonates and/or polycarboxylates
Superplasticizers	Melamine sulphonates and naphthalene sulphonates and/or polycarboxylates, in some cases the addition of lignosulphonates
Air entraining agents	Soaps made from natural resins as well as synthetic, ionic and non-ionic surfactants
Retarders	Sucrose, gluconates, phosphates, lignosulphonates, zincates
Accelerators	Silicates, aluminates, carbonates, formates (salts of formic acid), aluminium sulphate, chlorides
Concrete release agents	Aqueous emulsions, solvent-free release agents on a mineral oil base
Concrete curing agents	Aqueous paraffin dispersion

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TABLE 2

Concrete restoration ist many-sided. According to experts there are different ways to achieve “healthy concrete”

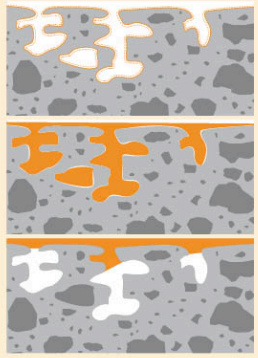
1.	Filling cracks and voids with reactive resin, cement paste, cement suspension	
2.	Filling smaller damaged areas with repair mortar and concrete	
3.	Large-surface application of mortar or concrete	
4.	Application of: a) Hydrophobization agents: impregnation of the concrete to produce a water repelling surface. Pores and capillaries are not filled but lined with the agent and no film forms. The appearance of the surface of the concrete is not changed. b) Impregnation: treatment that seals the concrete to reduce surface porosity. The pores and capillaries are mostly filled. An uneven, thin film forms on the surface of the concrete. c) Coating: treatment that forms a layer to produce a closed, protective layer on the surface of the concrete.	
5.	Reinstatement of corrosion protection for steel reinforcement by - Superficial application of mortar or concrete - Local repair with concrete or mortar - Limiting water content in the concrete - Coating the reinforcement	

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TABLE 3

Ingredients in permixed mortars

Ingredients	Mineral binders	Polymer binders	Aggregates	Additives
Effect	They cement the aggregates and other solids in the mortar mixture together and ensure good adhesion.	They improve flexibility, water repelling properties and adhesion to modern, often smooth building materials such as polystyrene or fibreboards.	Aggregates are especially sand. Sometimes coloured pigments are additionally used to make visible joints more attractive.	Additives improve the workability of the mortar such as water retention capacity. The mortar dries more slowly.

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TABLE 4

Criteria that different modern joint mortars must meet

Traffic loads – fork lifts, pedestrians
Chemical loads – acids, lyes
Stress caused by thermal expansion
Cleaning – especially abrasive agents and high pressure cleaners
Wetting with water – especially for water reservoirs
Suitability for different building materials – for example different types of natural stone
Adhesion with different joint depths and widths
Colours according to wishes