

concrete additive polyoxyethylene ether TPEG 2400

concrete additive polyoxyethylene ether TPEG 2400 is a kind of main raw material (polycarboxylate ether monomer) for producing high performance water reducing type and slump retention type polycarboxylate superplasticizer (PCE), it is produced with isopentenol and ethylene epoxide as main raw materials.

Research progress on application of concrete additive polyoxyethylene ether TPEG 2400 as polycarboxylic acid water reducing agent

The present situation of polyether monomer industry in China was briefly analyzed, and the varieties and market situation of main polyether carboxylic acid monomers were introduced. From the point of view of molecular structure of different monomers, the advantages and disadvantages of each monomer and its development direction were analyzed, and a new type of polycarboxylic acid water-reducing agent, ethylene monomer polyethylene glycol ether (EPEG), was introduced.

Polycarboxylic acid water reducing agent is the latest generation of concrete admixture, known as the third generation of high-performance water reducing agent. Compared with naphthalene superplasticizer, polycarboxylic acid superplasticizer

has the characteristics of higher water reduction rate and better cement adaptability. At the same time, polycarboxylic acid water reducing agent production process without waste water and waste gas generation, belongs to the green environmental protection material.

Poly (carboxylic acid water reducing agent is has the attributes of the amphiphilic polymer, usually in a double bond at the end of the polyoxyethylene ether big monomer with unsaturated carboxylic acid small molecular monomers, under the effect of initiator, copolymerization reaction synthesis of monomer to the size of the side alkenyl main chain molecules are formed by copolymerization, polyether monomer of polyethylene glycol (peg) segment of side chain structure, the molecular structure as shown in figure 1.

Compared with conventional water-reducing agent, polycarboxylic acid water-reducing agent has the characteristic of designability of molecular structure. In the water reducer molecule, the unsaturated double bond of the large monomer end group, through polymerization reaction to generate polycarboxylic acid main chain, and the molecular main chain is directly connected to the -COO-Na, -SO₃-Na and other groups, the formation of "multi-point

anchorage", adsorption on the surface of cement particles; The polyethylene glycol branch chain of the large monomer forms a solvated polymerization chain layer on the surface of cement particles by hydrogen bonding with water molecules. The steric hindrance effect is used to disperse cement particles, so as to achieve the effect of water reduction. Therefore, the improvement of superplasticizer is inseparable from the replacement of large monomer, and the improvement of molecular structure of large monomer can greatly improve the production process and product performance of polycarboxylic acid superplasticizer.

Quality Standard

Appearance:	White or light yellow flaky solid
Unsaturation mmol/e:	≥ 0.38
Moisture:	$\leq 0.2\%$
Hydroxyl Value mg KOH/g:	23.5 ± 2.0 ,
PH value (1% water solution):	5.0-7.0
Double Bond Retention:	$\geq 98\%$

Storage and Transportation

concrete additive polyoxyethylene ether TPEG 2400 is non-toxic, nonflammable and can be shipped as general chemical, stored at dry, ventilated place, away from sunshine and rain.

