



## **Daracrete® 107R**

Slow setting super plasticizer ASTM C 494 TYPE F, G.

### **Description:**

Daracrete 107R is a super plasticizer and high concrete water reducer which has been designed and produced on the basis of reformed polymers of naphthalene sulfone.

In addition to the plasticization feature Daracrete 107R delays concrete's initial curing time and also increases the slump's lifetime.

According to ASTM C 494 guideline Daracrete 107R is placed in rate F, G (by considering dosage).

### **Chemical reaction:**

By producing similar electrical charges in cement particles, Daracrete 107R causes an even distribution of these particles in the cement paste that makes more plasticization and completes cement hydration reactions, this will result in higher initial and final compressive and tensile strength.

### **Utilization cases:**

- Daracrete 107R increases slump lasting in plasticized concrete.

Daracrete 107R is designed to produce concrete with high compressive and tensile strength and also plasticized concrete by keeping its efficiency.

Some utilization cases of Daracrete 107R are listed below:

- Concrete with low ratio of water to cement.
- Concrete with high compressive and tensile strength and also concrete with high initial and final strength.
- Pre-cast concrete.
- Bridge deck concrete.
- Mass concrete.
- Concreting with long delivery time.
- Concreting in warm weather.
- Architectural and exposed concrete.
- Implementation shells with vibrating mold method.

### **Advantages:**

- Increase in concrete's initial and final strength.
- Reducing concrete's water usage (15-30% in comparison to non-admixture concrete) without decreasing its plasticization.
- Reduce in concrete's water to cement ratio.
- Reducing concrete's permeability and increasing its durability.
- Increase in concrete's plasticization without increasing its water usage (3 or 4 times more than the slump of non-admixture concrete).
- Reduce in cement utilization and an increase in concrete's compressive and tensile strength.
- Increasing concrete's initial curing time.
- Reducing cement's hydration temperature by delaying its initial curing time.
- Reducing concrete's slump loss.
- Reducing cracks caused by cement hydration heat.
- Reducing cracks caused by plastic shrinkage.
- Reducing labor costs for concrete mellowing due to high plasticization.

- Easy concrete mellowing in cases that reinforcement volume is compact.

\*Practical samples of field concrete are stated in the following that confirm the mentioned advantages.

(Daracrete 107-01) table

Sample code	Cement (kg)	Water (kg)	Ratio of water to cement W/C	Slump (cm)	Compressive strength $kg/cm^2$			Daracrete 107R	Density
					1 day	7 day	28 day		
SH-01	360	196	56%	8	103	161	282	0	2.39
D107-01	360	170	48.5%	8.5	177	214	356	0.5	2.4
D107-02	360	140	43%	8	197	237	394	1	2.41
D107-03	360	133	38%	8	211	252	421	1.5	2.42

**Note:**

Maximum aggregate nominal size is 19mm.

The consumed cement is type II.

The stated strength above is on the basis of 152\*305 mm concrete core samples.

Chart (107R-01-1), decrease in ratio of water to cement by increasing consumption rate

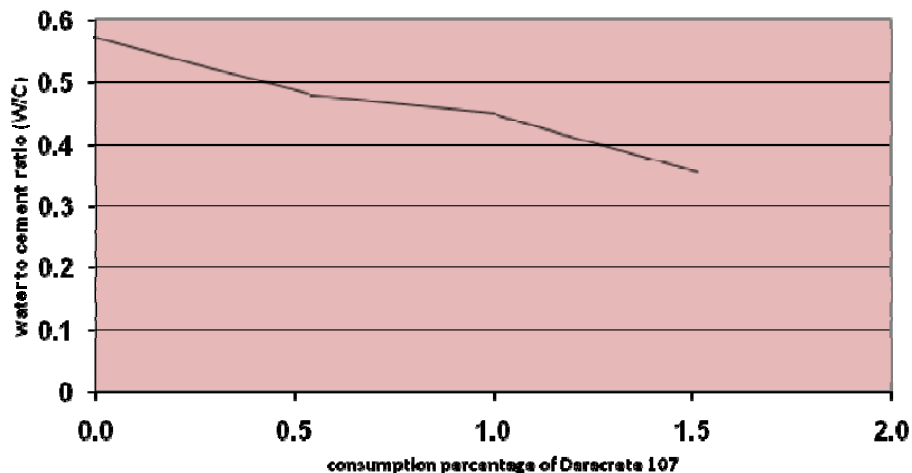
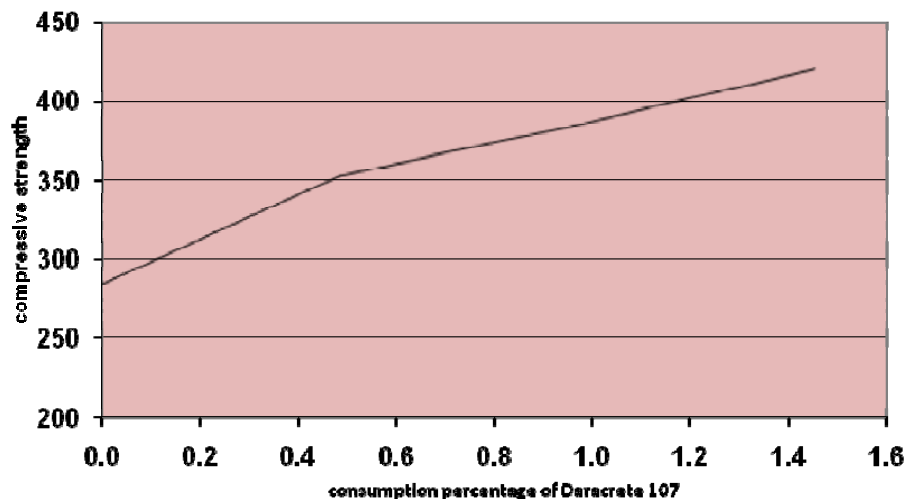


Chart (107R-1-2), Increase in resistance by increasing consumption rate



(Daracrete 107R-02) table

Sample code	Cement (kg)	Water (kg)	Daracrete 107R (lit)	Slump (cm)	Compressive strength kg/cm <sup>2</sup>		
					1 day	7 day	28 day
SH-02	360	176.4	0.0	2	172	206	344
D107R-04	360	176	1	5	176	211	351
D107R-05	360	175.4	1.0	8	180	218	362
D107R-06	360	175.2	1.2	10	183	229	365

(Daracrete 107R-03) table

Sample code	Cement (kg)	Water (kg)	Daracrete 107R (lit)	Slump (cm)	Compressive strength kg/cm <sup>2</sup>		
					1 day	7 day	28 day
SH-03	420	210.0	0	12	156	191	316
D107R-07	380	190.0	0.5	11	164	202	332
D107R-08	355	177.5	1	12.5	170	205	341
D107R-09	330	165.0	1.3	11.5	173	209	348

**Dosage:**

Daracrete 107R is consumed in different quantities. Its normal dosage is from 0.3 to 1.5 liters per 100 kilograms of cement. For utilizing Daracrete 107R outside the mentioned limits, contact the company's technical department. Consuming more than the advised dosage will result in high plasticization and slow curing of concrete mixture, consuming less than the advised dosage will not have the expected effects of concrete.

**Preservation:**

Daracrete 107R must be kept in 2°C-50°C and away from direct sunlight; if it is preserved in the mentioned conditions Daracrete 107R will be consumable for 12 months.

If Daracrete 107R is kept in other conditions, contact the company's technical department before utilization.

**Technical information:**

Base substances: poly naphthalene sulfone + other polymers

Appearance: brown liquid

Sulfate rate: 1.1%

Unit weight: 1/18

Chloride rate: free from chloride

**Compatibility:**

Daracrete 107R is compatible with all kinds of cement produced in Iran and cement replacements such as micro silica, slag, Flayash and etc. If you need to consume Daracrete 107R with other chemical additives inform the company's technical department before hand.

\*Azhand international construction chemicals company's products are designed and produced according to international standards and principles, this company's products have also been guaranteed in case of defect and product deficiency.