



Sika at Work

Korinthos-Tripoli-Kalamata Motorway, Greece



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Korinthos-Tripoli-Kalamata Motorway

Owner: Greek Public Sector
Contractor: JV MOREAS (AKTOR SA, INTRAKOM)
Start / Completion of Project: March 2008 / September 2012
Consultants-Supervision: FABER MAUNSELL

Project Description

Korinthos-Tripoli-Kalamata Motorway, which is completed by the Lefktro-Sparti section, belongs to the second phase of the modernization and development of Greece's national road network, through co financed projects that were auctioneered after 2000.

The main scope of the project that belongs to the Trans-European Network, is to become one of the most important factors of the regional development of the Central and South Peloponnesus and especially of the Arkadia, Argolida, Messinia and Lakonia prefectures.

The project will reduce decisively the travel time among the geographical areas that serves. Depending on the place of departure and destination, the profit from the shortening of the travel time is estimated to range between 14% up to 53%.

Project Description

General Characteristics

- Motorway length (after completion): 205 km
- Intersection (after completion): 2 lanes per direction, with a central dividing strip
- Nodes (after completion): 24

Existing part Korinthos - Tripoli

- Length: 82,6 km
- Nodes: 10 (after completion)

Tunnels

- Sterna: Length 0,9 km (double branched)
- Neochori: Length 0,7 km (double branched)
- Artemisio: Length 1,4 km (upgrading of existing single branch and construction of B' branch)
- Kalogeriko: Length 0,6 km (double branched)
- Rapsomati: Length 1,3 km (double branched)

Car Service Stations

Construction of four new bilateral stations.

Project Demands

During the opening phase of the tunnels, the most important demand of the project had to do with the shotcrete. Due to the distance of the Mix Plants from the fronts of the tunnels, the shotcrete should have slump maintenance of 6 & 3 hours. Additionally, a mix design with rapid strength development was requested, so as to enable concreting with high output and high final strengths at the same time.

Total shotcrete quantity: 100.000 m³

The concrete for the final lining should have S3 (~ 15cm) slump category when arriving on site and achieve high early strength of 10 Mpa at 10-12 hrs, so as to ensure fast demoulding and casting of 2 moulds per day.

Total concrete for final lining: 150.000 m³

Sika Solution

Sika managed to satisfy all the above mentioned demands. Especially for the shotcrete mix, Sika's contribution did not limit itself to the proposal of the suitable admixtures that could satisfy the demands, but also extended in practice during the mix design. At Sika's Concrete Laboratory, we conducted concrete trials, in order to test the slump maintenance for the requested time periods, based on standard methods. At a next phase, Sika conducted once again trial tests on its own laboratory, upon demand of the job-site, in order to optimize the cost of the mix designs. With the use of **Sika® Viscocrete®** superplasticizers, we managed to reduce the cement quantity in the mix by 20 kg/m³, without negative impact on the final strengths.

Sika Products:

Shotcrete and Final Lining Concrete

Product	Description	Quantities (tn)
Sigunit® L22E	Shotcrete accelerator	934
Sika® Viscocrete® 3000	New generation superplasticizer	1.400
SikaTard® 930	Set stabilizer	211

Bridges and Technical Projects

Product	Description	Quantities (tn)
Sika® Viscocrete® 3000	New generation superplasticizer	800
Sikament® 220	Superplasticizer	141

Product	Description	Quantities
Plastiment® 20R	Retarder	142 tn
Antisol® S	Curing compound	19 tn
Sikaflex® Construction	Polyurethane sealant	4.250 sausages 600ml
SikaRep®	Repair mortar	3 tn
Sikadur® 31	Epoxy resin	180 pieces
SikaRapid®	Rapid setting cementitious mortar	7 tn
Sika® Anchorfix-1	Fast curing anchoring adhesive	4.000 cartridges 550 ml
Sika® Monoseal® 101	Cementitious waterproofing mortar	4.8 tn
Sikaplan® Tunnel	Waterproofing membrane	850 m ²
SikaDrain®	Geotextile	5.500 m ²
Sika® Waterbars	Waterbars	17.800 m
Sikagard® 720 EpoCem	3 component cement and epoxy micro mortar for surface sealing	5 tn
Sikafloor® 156	2 component epoxy primer, leveling mortar and mortar screed	1.35 tn
Sikagard® 63 N	2 components epoxy protective coating	3,5 tn
Chapdur Premix®	Surface hardener	7 tn