RAZON

ADMGP-1, SPG-1A, ACCELERATOR 2025, RJC-3000

(Dam Injection Grouting Enhancers)

Grouting old RR-masonry dams or colgrout-masonry dams require cement slurry grouting with a pressure limit of 2.5kg/cm^2 to 3.0kg/cm^2 as a maximum limit.

Cement and water is grouted in proportion starting from 1:5 or more to 1:3 and pressure grouted. As grouting progresses the water cement proportion is adjusted to keep pressure limit within the prescribed limit, till saturation grouting.

In this operation cement is used as a binding and filler medium and water is used as a carrier. Cement content should ideally be high, however it generally cannot be increased since it impedes grout penetration and flow. To facilitate penetration and flow large proportion of water is used which reduces packing efficiency.

In this type of operation certain inherent disadvantages lead to excessive cement consumption and delays. If the continuous porosity opens into the upstream or downstream face of the dam, the grouting operation continues indefinitely **without developing back pressure**. The underwater, water pressure and velocity exhibit "wash out" effects with the result, in large voids remain unfilled, permeability of the matrix remain unaffected and seepages through the gallery continues. Also

(1) presence of large and slime on the cavity substrate do not permit bonding between binder and substrate.

(2) "Big to small cavities" lead to unplugging due to differential pressure at the neck due to "Bernaulli-pressure" effects.

(3) Since water is used as carrier, due to high water proportion lead to segregation, further wash out effects renders the operation ineffective.

(4) Use of high water proportion and lower solids in the grouting slurry renders the grout ineffective since the plugging and sealing of the cavities is effected by the solids in the grout, and in these slurries the water proportion is high, cement wastage is high.

Our Grouting system comprising of combination of ADMGP-1 in powder from and SPG-1A plasticizer and Accelerator 2025 in liquid from. This combination has proven as most effective and efficient, it complete the operations speedily. The impermeability of the matrix is rapidly increased, reducing permeability of the matrix most efficiently, with optimum advantage of binding and filling properties of cement.

ADMGP-1

- enable higher solids loading in the slurry without effecting flow characteristics,
- optimizes sealing and packing in conjunction with cement as principle binder.
- It synergies and augments binding and sealing of cementations binder.
- ADMGP-1 enhance bonding and sealing properties on organic covered surface.
- Its most vital feature is its bonding properties & under water sealing ability against wash-out effects.

SPG-1A

- also enables higher solids loading in the slurry with out effecting flow properties, In fact has proved to enhance flow and penetration characteristics of the grout.
- higher packing and sealing of the void is seen.
- Imparts higher and efficient impermeability of the matrix is observed, the grouting campaign is speeded up.
- It is also plugging and sealing under water, and unaffected by "Washout effects" due to high water velocity.
- It is found most efficient particularly in case continuous porosity which open on to the up-stream or down-stream face of the reservoir.

Accelerator 2025

- accelerates setting of cement and facilitates speedier operation for plugging jetting water in gallerias or down stream jets plugging

ADMGP-1 and SPG-1A and Accelerator 2025have proven its efficacy in **plugging spouting water jets in inspection galleries within 15-20 minutes**.

PROCEDURE
For plugging spouting water jets in inspection Galleries:

Drill hole depending upon the 'packer' diameter into the spout of the water jet. Drill up to a depth of 1M to 1.5M. Hammer the 'packer' into the drilled hole till firmly imbedded.

Start grouting with lean slurry initially using 1:5 to 1:4 binder water proportion, using 20 Kgs ADMGP-1 per bag of cement, and 200-500 ml SPG-1A and 400-500 ml Accelerator 2025 per bag of cement, followed by a richer slurry using 1:3 to 1:2 cement water proportion and 20-40 kgs ADMGP-1 per 50 kgs cement, 500ml to 1ltr SPG-1A and Accelerator 2025 per bag cement 1part ADMGP-1 and Accelerator 2025, till ball of thick consistency is obtained. Do not use water in this paste.

This procedure may be used to plug jetting water on down stream face of the reservoir

Treating over head water jets spouting holes in Inspection Galleries firs followed by lower jetting spout later generally optimize packing efficiency and reduces grouting time, grout consumption, as well as binder consumption.

For treating block joints

Drill packer holes in the center of the joint up to depth permitted depending upon the position of the 'barrier-curtain' imbedded in the matrix. Hammer packer till firmly imbedded.

Start injecting from lowest possible height and inject progressively upwards, at intervals of 1m-2m or as instructed by the 'Engineer in Command' at site.
Commence injection with leaner mix, 1:5-1:4 water cement. Progressively reduce water proportion, increase ADMGP-1, SPG-1A and Accelerator 2025 content gradually till saturation grouting.
After complete treatment of 'block-joint' over coat the entire joint from top to bottom with 2 coat of Razon PA Mortar Slurry.(Refer P.A. Mortar Slurry brochure)

For Curtain Grouting.

Drill packer hole up to the depth specified by 'Engineer in Command' at Site. Start initial grouting with water slurry continue injection as usual till back pressure indicate saturation grouting. The injection value will indicate characteristic permeability of the matrix being treated.

Generally after this operation subsequent hole is drilled at the same point at reduced height, and injection grouting is commence. Start with lean mix using lean mix and 20 kg ADMGP-1, 300 increasing ADMGP-1 content, SPG-1A & Accelerator 2025 content gradually till back pressure indicates saturation grouting.

Few site trials assist in establishing optimum efficiency and optimum advantage dosage of ADMGP-1, SPG-1A and Accelerator 2025 for best results.

Our experienced and qualified Engineer would be available for Site assistance.

For very difficult to plug, very large population of leaking jets, or very high permeability matrix which refuses to develop back pressure inspite of very large volume of injection grouting, RJC-3000 is used to conjunction with binder, ADMGP-1, SPG-1A. and Accelerator 2025. RJC-3000 is inert, plasticity inducting very high efficiency filler of 30 micron cellulosic character. It is used up to 30%-60% of binder.

PACKING:
ADMGP-1 is available in convenient to use and handle 20 kg hermetically sealed polyethylene bags. SPG-1A and Accelerator 2025 is available in 50 lt car buoys and 200 Lt barrels.

PRODUCT DATA

ADMGP-1		
1	Colour	Free flowing, sticky, whitish powder
2	Sp Gravity	2.2 to 2.5
3	Size	0.3 to 0.4
4	Dosage	Minimum dosage 10 kg to max of 40 kg per 50 kg cement
5	Cement compatibility	OPC,PPC,GGBS.
6	Shelf Life	1 year Site in cool dry place
7	Pot Life	Use within one hour after maxing with binder
8	Test Certificate	MERI Report
9	Packing	20 kgs, Polyethylene hermetically sealed bags
SPG-1A		
1	Colour	Amber Coloured Liquid
2	Specific Gravity	1.05 to 1.1
3	PH	7-9
4	Dosage	200ml to 2 lt per bag of cement
5	Cement compatibility	OPC,PPC,GGBS.
6	Shelf Life	1 year, Store in cool dry place
7	Pot Life	Use within 1 hour after mixing with binder
8	Packing	50 kg carbuoys, 200 lt barrel
9	Test Certificate	MERI Report
ACCELERATOR 2025		
1	Colour	Amber Coloured Liquid
2	Specific Gravity	1.01 to 1.1
3	PH	7-9
4	Dosage	200ml to 2 lt per bag of cement

OTHER PRODUCTS:

Waterproofing systems
Concrete Admixtures
Sealants
Curing Compounds

Underwater Epoxies
Protective Coating of Epoxies
Polyurethane based waterproof coatings

RAZON ENGINEERING COMPANY PRIVATE LIMITED
660, Taboot Street, P.O.Box No.49, Pune-411001 [India] Website: www.razonengg.com
Ph: +91-20-2613 0791, +91-20-2613 2217, Telefax: +91-20- 2613 0017 E-mail: razonengg@gmail.com,
AN ISO 9001:2008 ACCREDITED MANUFACTURER