

# HQS-H huaqiansu

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——Admixture for lean production of duct grouting material

## Uses

HQS-H huaqiansu is an admixture for duct grouting material.

## Advantages

■ **High fluidity:**Gives high grout fluidity with low water/cement ratio,thus making placement or injection of the grout easy.The cement mixed with HQS-H huaqiansu flows, coheres and lubricates like water,and can self-compact and harden without shrinkage deformation in an unconstrained state.

■ **Expansion rate:**Gaseous expansion system compensates for plastic shrinkage and settlement in properly designed cement grouting material.

■ **Stability:**No metallic iron content to corrode and cause staining or deterioration due to rust expansion in the grout.

■ **Impermeability:**reduced water/cement ratio mixes in the grout mix ensures low permeability and long term durability in service.

■ **Winter construction:** Suitable for winter construction under - 10 °C ambient temperature.

## Description

HQS-H huaqiansu is supplied as a powder admixture.the material is a combination of a plasticising agent and a gas producing expansion medium.The plasticising agent allows the use of a reduced water/cement ratio with consequent

increased strengths and durability. The expansive medium counteracts the natural settlement and plastic shrinkage of the grout and aids stability and cohesion.

## Dosage

The dosage is 1.25% of the weight of cement, drastic over-dosing of HQS-H huaqiansu increases expansion and may cause frothing.

## Formula technology of duct grouting material

According to the current industry standards TB/T3192-2008<Technical Conditions for Grouting of Railway Post-tensioned Prestressed Concrete Pipes>, JTG/TF50-2011<Technical Specifications for Construction of Highway Bridges and Culverts> and GB/T50448-2015<Technical Specifications for Application of Cement-based Grouting Materials>.

### ■ Duct grouting material formula (kg/t)

P. 042.5 Ordinary Portland cement/kg	HQS-H huaqiansu/kg	recommended water consumption/kg
1000	12.5	280
Note: If conditions permit, Portland cement with strength grade of 52.5Mpa or ordinary Portland cement shall be preferred.		

### ■ Duct grouting agent formula (kg/t)

P.042.5 Ordinary Portland cement/kg	HQS-H huaqiansu/kg	Note:When used, mix according to the ratio of "duct grouting agent: cement=1:9".
100	12.5	
Note:The recommended water consumption is 28~30% of the weight of the mixed duct grouting material.		

## Construction technology of bridge prestressed duct grouting

### ■ Hole cleaning

Use a grinder to cut off the excess steel strand and anchor sealing head outside the anchorage, and use pressure water to clean the hole.

### ■ Mix

Use a high-speed mixer to mix the slurry pressing material and water into a slurry, and store it in a low-speed stirring slurry storage tank after sieving.



### ■ Grouting

(1) Start the slurry pump. After the slurry output of the slurry pump reaches the required consistency, connect the slurry delivery pipe to the trumpet type slurry inlet pipe.

(2) Start grouting, the grouting pump shall maintain continuous operation and complete the grouting operation of one channel at a time, and the grouting time shall not exceed 40min. Close the slurry discharge pipe when the slurry flows smoothly from the slurry discharge pipe and its consistency is equivalent to that of the injected slurry.

(3) The grouting pump shall continue to inject until the pressure reaches 0.7Mpa, and stop and hold the pressure for 2min. In the process of holding pressure for 2 min, if the pressure does not drop significantly, close the slurry inlet pipe; If the pressure drops significantly, find out the cause and solve the problem, and then

use "vacuum assisted grouting technology" for secondary re-grouting.

### ■ Vacuum assisted grouting

( 1 ) Start the vacuum pump. When the vacuum pump pressure is  $-0.06\sim 0.08\text{Mpa}$ , start the slurry pump.

(2) Start grouting,when the consistency of the slurry from the high-pressure rubber pipe outlet of the slurry pump is equivalent to that in the slurry storage tank, turn off the slurry pump.Close the high-pressure rubber pipe grouting valve and connect the high-pressure rubber grouting pipe to the grouting pipe on the duct.Open the valves of these two grouting pipes and start grouting.

(3) Observe the discharge condition of the discharge pipe,when the grouting filling degree should be full and reach the other end of the hole, until the slurry discharged from the vent hole is equal to the slurry in the slurry storage tank, close the grout outlet hole and maintain the pressure  $\geq 0.5\text{Mpa}$  for 3min.

(4) If slurry replenishment is required,let the water and suspended slurry in the pipeline flow freely from the outlet end first, and then start slurry replenishment.After the slurry is replenished until there is homogeneous slurry flowing out at the outlet, continue to maintain the pressure of  $0.5\text{Mpa}$ , hold the pressure for 5min, and repeat for 1-2 times.



## **Packaging, storage and transportation**

The packaging specification of this product is 25kg/bag, or 2.5kg/bag.

This product should be stored in a dry and ventilated environment to avoid rain, water, moisture, and sun exposure. The unopened shelf life is 12 months.

This product is nonflammable, non-explosive, non-toxic and tasteless, and does not contain heavy metals, halogenated hydrocarbons, benzene series, formaldehyde, VOC and other harmful substances. It can be stored and transported as general goods.

## Statement on data and other recorded contents

- The data recorded in this document are based on typical experimental values, so there is no guarantee for the recorded content.
- Before use, please confirm the detailed use method and precautions according to this information and product safety data.
- When using, your company must carry out a prior test to confirm whether it meets the use purpose and safety.
- The contents of this document are subject to change without notice.



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