

# Coulinex

## Main Data and Application Recommendations

COULINEX, based on NHL 3.5, is a grout, which can be used for injection. It has no cement or pozzolanic additions and can be used on its own or with the addition of sand, depending on the size of the voids. COULINEX can be applied by gravity feed or by pump with a very low pressure. In fine injection work it can be applied on its own or with very fine aggregate, depending on the voids size.

When grouting porous materials, clean water should be used first to reduce suction to avoid the risk of blocking some voids, impeding the grout to fill the whole of the grouting area. This operation should be conducted slowly and with care, making sure that there is no free water (saturation) in the cavity. This can be done by making a small hole in a joint at the bottom of the grouting area, if water pours out one should stop adding water and wait for the water to be absorbed by the structure.

COULINEX can be applied by gravity feed or by pump with a very low pressure. In fine injection work it can be applied with or without very fine aggregate, depending on the size of the voids.

Injection and grouting work normally starts from the lowest part of a structure or the section of a structure to be treated. Re-pointing work is done before the intervention, to the level of the first grouting/injection point. About 24 hours later, the operation is repeated on the section above, until completion of the work.

Grouting can also be used in retrofilling work when stones or bricks have been changed in a section of a structure. Here the size of the voids is known and therefore the joints work can be done on larger areas. To allow COULINEX to achieve its best performance, however, the grouting work should be performed in stages at 24 hours interval, depending on the porosity of the materials with which the grout will be in contact.

In choosing a grout, particular attention should be paid to its "stability". This is the property of the grout to retain unnecessary water (this is the water exceeding the amount required for hydration and fluidity) not allowing it to flow freely. It is measured in hours and, ideally, a zero should be achieved within 24 hours although figures of about 1% are still considered low enough for further work to continue. In other words, within 24 hours either zero or only a small percentage of water is free to flow. Tests conducted on COULINEX show that this value is achieved within the time stated.

Injection and grouting materials should not contain sulphates and organic components, especially in restoration/conservation work. None of these is contained in COULINEX.

Dense and non breathable mixes (cementitious) can cause severe long term damage, especially if dense mortars are applied also in the joints, as eventual moisture will not be able to evaporate and condensation will be created. In the presence of porous stones or bricks, the moisture will be absorbed by the bricks or the stones. Moisture movement will also generate the migration of salts that might be present within the structure and unnecessary pressure will be generated within the structure itself.

**Packing:** Coulinex L 55 lbs (25 kg bags)

Coulinex M 44 lbs (20 kg bags)

**Shelf life:** 8-12 months kept sealed and dry

Can be applied via low pressure pump.

**Working Temperatures:** not below 40 degrees F or above 85 degrees F

The area must be dampened to control suction.

<b>Mix ratio</b>	<b>Coulinex L only</b> + water	<b>1:1 (Coulinex M)</b> sand No. 40 - No. 70 + water	<b>3:1 (Coulinex L +</b> sand No. 40 - No. 70 + water ) - on site mix
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**Compressive strength – psi(N/mm<sup>2</sup>)**

28 days	195(1.35)	207(1.43)	460(3.17)
90 days	706(4.87)	650(4.48)	751(5.18)
6 months	751(5.18)	754(5.2)	870(6.0)

**Tensile strength - psi(N/mm<sup>2</sup>)**

28 days	45(0.31)	78(0.55)	155(1.07)
90 days	191(1.32)	329(2.27)	422(2.91)
6 months	205(1.41)	206(1.42)	236(1.63)

<b>water</b>	± 5.5-6 gal/25 kg bag	± 2 gal/20 kg bag	± 3.2 gal/ 20 kg powder
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<b>setting time</b>	21 hours	15 hours	
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**bulk density**

<b>lbs/ft<sup>3</sup> (g/liter)</b>	36.1(579)	62.2(996.5)	55.8(894)
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**SO<sub>4</sub>**

<b>content %</b>	0	0	0
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**Organic**

<b>Content %</b>	0	0.2	0.2
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<b>Consumption</b>	25 kg of material + water = 1 cubic feet	20 kg of material + sand + water = 0.5 cubic feet	
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**Fluidity Marsh**

<b>Cone 10 mm</b>	24	13	16
(Should be between 13-25 seconds)			

**Stability % @**

<b>3 hours</b>	1.05	0.25	0.2
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**Stability % @**

<b>24 hours</b>	1	0	0
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Mixing time: 5 minutes in a cement mixer