

# CERTIFICATE OF CEMENT QUALITY

QUALITY CONTROL DEP.\ (LAB.)

قسم السيطرة النوعية / (المختبرات)

|                                |                                                                                                                                                  |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Reference number / 1+ 2+3+4+5  | Cement type / Portland Cement ( CEM I SR3.5-32.5 R )<br>نوع السمنت / (سمنت بورتلاندي مقاوم للكبريتات -<br>صنف المقاومة 32.5 مقاومة مبكرة عالية ) |
| Factory / Al-Kufa Cement Plant | Sampling date / 1/3/2021      Testing date / 31/3/2021                                                                                           |

| CHEMICAL<br>ANALYSIS | COMPONENT %       | TEST RESULT | LIMITS *              | CONFORMITY |
|----------------------|-------------------|-------------|-----------------------|------------|
|                      | Loss on ignition  | 1.70        | $\leq 4 \%$           | OK         |
|                      | Insoluble residue | 0.71        | $\leq 1.5 \%$         | OK         |
|                      | SO <sub>3</sub>   | 2.30        | $\leq 2.5 \%$ for SR. | OK         |
|                      |                   |             | $\leq 2.8 \%$ for OP. |            |
|                      | Chloride content  |             | $\leq 0.10 \%$        | OK         |
|                      | C <sub>3</sub> A  | 1.70        | $\leq 3.5 \%$ for SR. | OK         |
|                      | MgO               | 3.08        | $\leq 5 \%$           | OK         |

| PHYSICAL TEST           |         | TEST RESULT | LIMITS *                           | CONFORMITY |
|-------------------------|---------|-------------|------------------------------------|------------|
| Compressive Strength    | 2 days  | 14.58       | $\geq 10.0 \text{ MN/m}^2$         | OK         |
|                         | 28 days | 34.28       | $\geq 32.5 \text{ MN/m}^2$         | OK         |
| Initial setting time    |         | 124         | $\geq 45 \text{ min.}$             | OK         |
| Final setting time      |         | 03:12       | $\leq 10 \text{ hr.}$              | OK         |
| Soundness (Autoclave) % |         | 0.09        | $\leq 0.8$                         | OK         |
| Fineness ( Blaine)      | for OP. |             | $\geq 2500 \text{ Cm}^2/\text{gm}$ |            |
|                         | for SR. | 3150        | $\geq 2800 \text{ Cm}^2/\text{gm}$ | OK         |

\*According to I.Q.S No. 5/2019

Final Result      Acceptable

Plant Manager

Production Manager

Quality Manager