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## Instructions for use of FD1 water-based dry powder coating for cast iron by full mold casting

### Part 1. Application

Water-based coating for large and medium-sized castings by full mold casting. Suitable for resin sand, sodium silicate sand, cement sand and other self-hardening sand.

### Part 2. Composition

| SiO <sub>2</sub> /% | Al <sub>2</sub> O <sub>3</sub> /% | Graphite/% | Binder/% | Water/% | Other/% |
|---------------------|-----------------------------------|------------|----------|---------|---------|
| 10-20               | 40-50                             | 25-40      | 6-12     | 0.5-2   | 4-8     |

### Part 3. Features

The coating is in powder for easy transportation and storage.

### Part 4. Instructions

1. Dilution method: Use the adjustable speed high-speed disperser to stir, the dilution ratio is about 1:1.0~1.4 (water: dry powder). First, add tap water to the coating kettle. Start the machine and add the dry powder coating according to the proportion. Stir at 800r/min for 2 hours. After standing, measure the Baume degree of the coating with Baume meter. If the Baume degree is high, it can be diluted with appropriate amount of tap water; if the Baume degree is small, add the appropriate amount of dry powder. Adjust and continue stirring for about 2 hours at about 800r/min.

Note: The dilution Baume degree (concentration) should be higher, easy to adjust for use. Then adjust the stirring speed to about 100~200r/min and stir for more than 8 hours. The conditional factory can be stirred 1 day ahead of time and it can be used with a little stirring.

2. It is recommended to add 5% 830 type surface silica sol to the paint when producing thick-walled castings and large castings
3. Use technical parameters:
  1. Brushing Baume degrees: 75-85Be

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2. Dip coating, flow coating Baume degree: 55-70Be

4. It is recommended that the thickness of the coating is 0.5mm~0.8mm each time. Thin-wall castings are applied twice and the coating thickness is 1.5 mm or more. Thick-walled castings are applied 3 times and the thickness of the coating should be 2.0mm or more.

A small amount of cracks in the grooves and corners of the foam model caused by the accumulation of coating, can be properly repaired with coating.

5. Drying process: Due to the different equipment, processes and products of each factory, the appropriate drying temperature and time can be determined according to the actual conditions of the factory. Recommended drying temperature 50 ~ 60oC, drying time of about 24 hours.

#### **Part 5. Product advantages**

1. The coating has a good suspension, long-term storage does not precipitate, no delamination, no board, easy to stir evenly.
2. The paint has good thixotropy, high refractory aggregate content, good brushing properties, and it is easy to apply a uniform coating on the foam model.
3. The coating uses a special binder. The coating has high strength and can provide strong protection to the foam model and can effectively resist the penetration of molten metal.
4. The coating has a reasonable particle size, good air permeability, and can smoothly escape the gas generated by the foam material.
5. The coating is made of high quality refractory aggregates with high refractoriness and excellent anti-adhesion properties.
6. The coating does not contain toxic substances, does not produce toxic gases, and is harmless to operators.

#### **Part 6. Precautions:**

1. The foam model must not have oil or contamination from mold release agents during foam production. Failure to do so can result in the coating can't hang or coating being easily peeled

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off after the coating is dry.

2. The use of box-type drying ovens or tunnel-type drying ovens must ensure the uniformity of the hot air circulation and the stability of the temperature, so that the foam model is uniform heated around, and a reasonable discharge of humid air system is set.
3. The foam model should not contain moisture. If it contains water, it must be dried and then coated. Otherwise, the water vapor gap (separation) between the water and the coating layer, and the coating strength will decrease. When it is washed by high-temperature metal liquid, defects such as sand burning and coating slag are easily generated..
4. The coating on the foam model must be thoroughly dried after being painted once. It must also be ensured that it is thoroughly dried every time it is applied.

To prevent deep holes, grooves and other parts have not yet completely dry, easy to cause casting defects such as sand burning

5. During the modeling, the sand on the deep hole (weight reduction hole) and groove in the foam model should be compacted to prevent the generation of osmotic sand burning (iron packed sand). However, to prevent the paint layer from cracking due to excessive force, resulting in sticky sand.

#### **Part 7. Packaging and Storage:**

1. Packed in an inner film woven bag, 40KG per bag.
2. The paint is stored and transported as non-dangerous goods.
3. Store at room temperature, pay attention to moisture and sun protection, shelf life of six months.

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