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A Large Diameter Pipe Epoxy Powder Coating Line and Product Quality

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Synopsis :

An epoxy powder coating line has been in operation since April 1983 at the UOE pipe mill plant of Chiba Works. The line serves for an external coating of the world's largest class pipe with its diameters ranging from 12" to 64" and its length 60' at max, particularly for enduses requiring good corrosion resistance and good coating adhesion. A unique chemical treatment of pipe exterior for an improved corrosion resisting property; a dual-layer application of paint - one for adhesion and the other for impact resistance; an effective use of preheating and postheating; a computer-aided quality assurance system in temperature control and automatic film thickness measurement; all these technical developments assure good adhesion and toughness of the coating against damages to surface during transportation, handling and construction, thus opening up a new horizon unattainable by the conventional single layer coating method. This paper discusses these new technical developments mainly from the viewpoint of coating materials and coating conditions.

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A Large Diameter Pipe Epoxy Powder Coating Line and Product Quality*

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The present report outlines coating techniques em-



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Blasting is applied for the purposes of removing rust, giving appropriate anchor pattern to the pipe surface, thereby improving adhesiveness of coating film and promoting flexibility and impact resistance.

described later.

The post-heating furnace is to allow the film to complete the curing reaction so as to exhibit the full performance.

of coating is ensured for every possible combination of conditions such as resin type, pipe size and line speed.

together with the effects of pretreatment, powder resin and coating method.

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Table 2 Impact resistance of new developed coating method

Coating material and method	Test temperature
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Application method used etc.

effective for improving the salt water resistance, since the coated pipe treated in this method has the adhesiveness of film little affected after immersion in an 80°C saline solution for a long period, as shown in Table 4.

4 Conclusions

The line for epoxy powder coating installed at the Large Diameter Pipe Plant, Chiba Works has been described together with the properties of coated pipe produced by them.

The course of aging in the electric insulation resistance of coated pipe provides a criterion for evaluating

isms such as a chemical treatment unit for processing the steel surface, a double layer coating system to