

Preparation of High Efficient (Epoxy/plants coal/Alumina) Primers Applied to Concrete Petroleum Tanks

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Abstract

Very little work has been reported on the influence of exposure to petroleum products on the chemical resistance of concrete. The work presented in this paper deals with the fundamental aspects of this problem. Therefore different chemical solutions are used to study the chemical effect on this type of tanks that used in petroleum storage.

The effect of different additive fillers are used in prepared primer and are studied for different exposure media (moisture, 10% H₂SO₄, Oil) during 28 day residue time at 50 °c, and measure the penetration and chemical resistance of these samples.

Two types of filler are used organic (charcoal 30 μm particle size), and inorganic (alumina 100 μm particle size) to improve the chemical resistance of the prepared epoxy primer at different mixing ratio (st.s, Ch 1.2, 2.4, 3.6, A 1.2, 2.4, 3.6) respectively.

A comparative analysis shows that high chemical resistance appeared for alumina samples than charcoal especially for optimum mixing ratio (2.4 Ep. / additives).

Less effect of thickness on chemical properties appeared for standard sample and large effect of thickness for charcoal and alumina samples with preference for alumina especially at optimum thickness (2mm) for alumina and (3 mm) for charcoal samples with 2% comparison effect of thickness.

Also less effect of both moisture and oil compared to high effect of acidic solution (10% H₂SO₄) on the prepared samples with clear appearance to charcoal at 3 mm thickness and 1 mm for alumina.

Keywords: epoxy, primer, plants coal and alumina additive, application to petroleum.

تحضير طلاء عالي الكفاءة من الايبوكسي /الفحم النباتي/الومينا لتطبيقه في الخزانات الكونكريتية للمشتقات النفطية.

الخلاصة

هناك العديد من الدراسات المعدة في مجال تعرض المكونات والمواد للمشتقات النفطية وتأثيرها على مقاومة الخزانات الكونكريتية لهذه المشتقات. والعمل الحالي في هذا البحث له علاقة بهذه المشكلة ، لذلك تم استخدام المحاليل الكيماوية المختلفة لدراسة تأثيرها على هذه الأنواع من الخزانات والمستخدم في خزن المشتقات النفطية لحين تسويقها او نقلها . ان تأثير الحشوات المختلفة والمضافة لتحضير طلاء محسن عالي الكفاءة ثم دراسة لمختلف الاوساط المؤثرة مثل (الرطوبة ، 10% محلول حامض الكبريتيك ، الزيت الخفيف) خلال

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