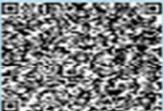
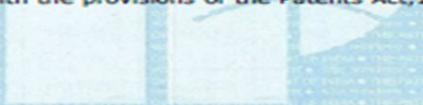


MRPL has Awarded a Patent for “OXIDATIVE TREATMENT OF REFINERY SPENT CAUSTIC”

Spent caustic streams resulting from the removal of the contaminants from the petroleum feed streams produced in refineries are highly alkaline, odorous and toxic, and contain sulfidic, phenolic and naphthenic salts. Environmental concerns and legislation dictate that such refinery spent caustic stream may no longer be directly disposed. Conventional methods such as a chemical oxidation method and/or wet air oxidation method can be used for treating refinery spent caustic stream. However, these methods are associated with drawbacks such as emission of foul smell or odour; and incapability of removing phenolic constituents or mixtures from the refinery spent caustic stream. The present work described in the patent, envisages a process for treating a refinery spent caustic stream advantages of conventional methods.

 INTELLECTUAL PROPERTY INDIA <small>PATENTS DESIGNS TRADE MARKS GEOGRAPHICAL INDICATIONS</small>		 भारत सरकार GOVERNMENT OF INDIA पेटेंट कार्यालय THE PATENT OFFICE पेटेंट प्रमाणपत्र PATENT CERTIFICATE <small>(Rule 74 Of The Patent Rules)</small>		क्रमांक : 044127191 SL No :	
					
पेटेंट नं. / Patent No.	:	359026			
अवेदन नं. / Application No.	:	201741009155			
समस्त करने की तारीख / Date of Filing	:	16/03/2017			
पेटेटी / Patentee	:	MANGALORE REFINERY & PETROCHEMICALS LTD.			
<p>प्रमाणित किया जाता है कि पेटेटी को उपरोक्त आवेदन में प्रकटित OXIDATIVE TREATMENT OF REFINERY SPENT CAUSTIC नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपरोक्त के अनुसार आज तारीख 16th day of March 2017 से बीस वर्ष की अवधि के लिए पेटेंट अनुदान किया गया है।</p> <p>It is hereby certified that a patent has been granted to the patentee for an invention entitled OXIDATIVE TREATMENT OF REFINERY SPENT CAUSTIC as disclosed in the above mentioned application for the term of 20 years from the 16th day of March 2017 in accordance with the provisions of the Patents Act,1970.</p>					
 INTELLECTUAL PROPERTY INDIA <small>PATENTS DESIGNS TRADE MARKS GEOGRAPHICAL INDICATIONS</small>					
 अनुदान की तारीख : 22/02/2021 Date of Grant :		 १०२ प्रमुख Controller of Patent			
टिप्पणी - इस पेटेंट की रद्दीकरण के लिए कोई भी शुल्क जमा करना पड़ेगा है, 16th day of March 2019 की और उसके समस्त तारीख जब से जारी दिन तक होती। Note - The fees for renewal of this patent, if it is to be maintained will fall / has fallen due on 16th day of March 2019 and on the same day in every year thereafter.					

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The present method of oxidative treatment provides process for treatment of refinery spent caustic and is comprises the following steps:

The Oil layer present in the Spent caustic is separated by a coalescer unit and allowed to settle the upper oil layer and a lower caustic layer. The oil free caustic layer is introduced in a neutralisation tank and subjected to controlled acidification using an acid to pH in the range of 5 to 6 at a temperature in the range of 60°C to 70°C to obtain a biphasic mixture comprising an organic layer and an aqueous layer.

The neutralised aqueous layer subjected to oxidation by using hydrogen peroxide. The resultant salt solution is further oxidized with a Nano-catalyst as second oxidant at an elevated temperature to obtain a treated odourless effluent product containing the very low concentration of sulphur component and phenolic component. The Nano catalyst may be in the form of divalent d-block elements of periodic table. The effective oxidization of phenolic compounds and sulfides will be completed at this stage in presence of Nano catalyst and oxidant

This process of Oxidative treatment removes odorous sulphur containing contaminants, naphthenic contaminants, and phenolic contaminants effectively from refinery spent caustic and reduces release of foul smell. This can be used for the final polishing technique for the Refinery spent caustic or refinery effluent treatment process.

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