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CLEANING OF ALUMINIUM SHELLS AND REMOVAL OF OIL IN EFFULENT PLANT [EXPLOSIVES INDUSTRIES]

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Keywords:

Aluminium Empty shells, lubricating oil, Hydraulic unit, soap solution, sodium chloride, Rotating wheel.

Abstract:

Cleaning of empty aluminium shells using Soap solution followed by the removal of oil by sodium chloride.

Introduction:

Normally in the explosives industries two types of detonators are produced. Now we are going to discuss about the production and cleaning and effluent treatment. Aluminium shells (empty) of various dimensions are produced in shell manufacturing plant. The empty shells with lubricating oil is transferred to shell cleaning plant to remove lubricating oil.

Experiment:

The cleaning unit consists of

1. cleaning with cold water

2. Hotwater

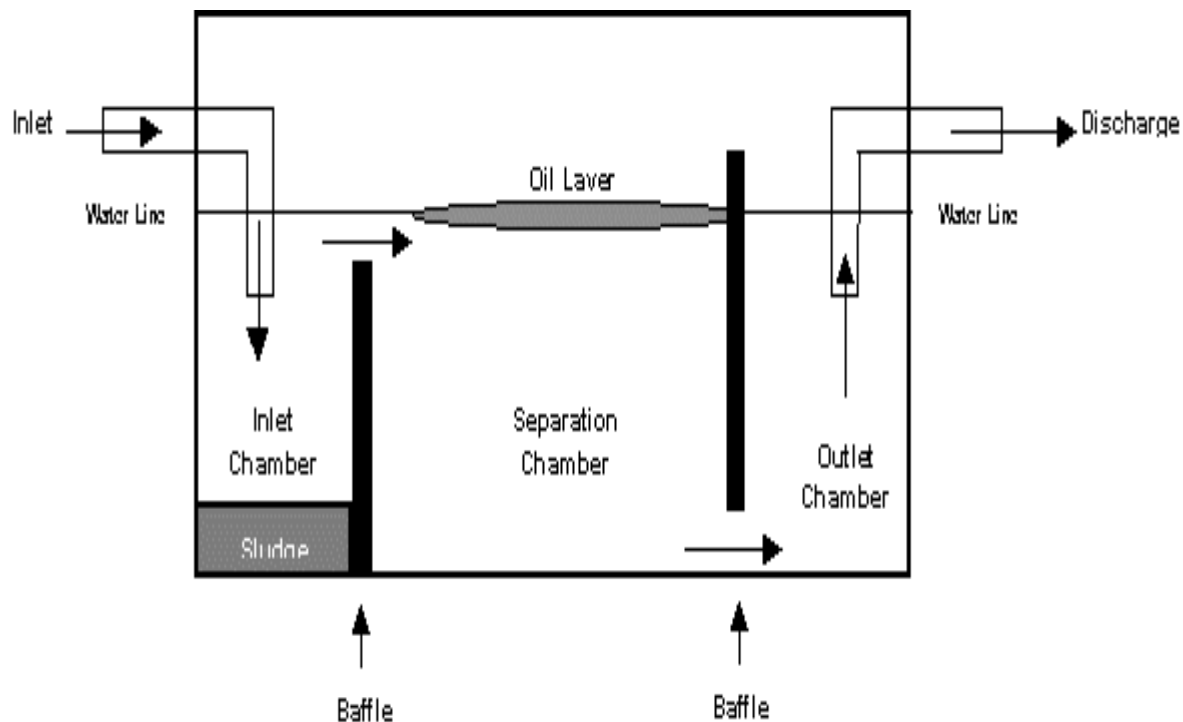
3. soapsolution.

The water containing oil can be removed in effluent plant to avoid water and soil pollution.

Empty shells with lubricating oil are loaded in rotating wheel of approximately 2000 numbers. The rotating wheel is operated by hydraulic unit. First the rotating wheel is transferred and dipped in coldwater vessel and the wheel is rotated in clockwise and anticlockwise direction for about 5 minutes. After the water is drained, the rotating wheel is transferred to hotwater vessel, where the same procedure is followed. Then the rotating wheel is lifted to the soapsolution vessel where it is rotated in clockwise and anticlockwise direction to remove all oils present in aluminium empty shells.

Effluent process:

FLOW DIAGRAM:



Storage tank:

The water from the shell cleaning plant is stored in storage tank whose capacity is 30000lit.

Reaction Tank

The water from storage tank by gravitational force reaches the reaction tank where the collected soapoil water is agitated with sodiumchloride and the oil is separated at the top.soap is precipitated at the bottom.the water from the tank goes to the othertank.

Separation Tank

The oil is separated at the top is collected in vessels and recycled to avoid water pollution and soilpollution. The water in the separation tank is pumped out. The water free from oil can be used for industrial purpose. The precipitated soap after drying can be removed and packed.

Result and discussion

The water coming out after the treatment is free from oil which will not cause water as well as soil pollution and can be used for industrial purpose. The oil can be recycled and used.

References:

1. Holleman, Arnold F.; Wiberg, Egon; Wiberg, Nils (1985). "Natrium". *Lehrbuch der Anorganischen Chemie (in German) (91–100 ed.)*. Walter de Gruyter. pp. 931–943. ISBN 3-11-007511-3.
2. ^ Cowan, James A. (1997). *Inorganic Biochemistry: An Introduction*. Wiley-VCH. p. 7. ISBN 978-0-471-18895-7. OCLC 34515430.
3. ^ Remington, Joseph P. (2006). Beringer, Paul, ed. *Remington: The Science and Practice of Pharmacy (21st ed.)*. Lippincott Williams & Wilkins. pp. 365–366. ISBN 978-0-7817-4673-1. OCLC 60679584.
4. ^ Wiberg, Egon; Wiberg, Nils; Holleman, A. F. (2001). *Inorganic Chemistry*. Academic Press. pp. 1103–1104. ISBN 978-0-12-352651-9. OCLC 48056955.
5. ^ "Metal Aqua Ions". *Comprehensive Coordination Chemistry II*. 2004. p. 515. doi:10.1016/B0-08-043748-6/01055-0. ISBN 978-0-08-043748-4.
6. ^ Dean, John Aurie; Lange, Norbert Adolph (1998). *Lange's*