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# Management of Phosphatic Sludge of an Automobile Industry

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***Abstract*** *-In the Present study is aimed for phosphatic sludge management in an automobile company.In automobile industry before painting phosphate coating is given for improving paint adhesion and to increase corrosion resistance. Present study will be conducted for management of phosphatic sludge generated from automobile manufacturing company in MIDC area , Hingna, Nagpur. Treated effluent generated from secondary phosphatic sludge is used as soil conditioner. It is advisable to provide phosphatic sludge treatment before it is used for gardening & agricultural purpose as a fertilizer. It is proposed to estimate the quantity, quality and to characteristize phosphatic sludge for pertinent parameters viz. moisture content, bulk density, ash, pH ,Oil & Grease, Nitrogen, Phosphorus, potassium, Chloride, Sulphate, Iron, Calcium, Magnesium, Na & heavy metals viz. Chromium, Zinc.*

***Key Words: phosphatic sludge hazards, management of an automobile industry.***

## I- INTRODUCTION

Phosphate coating is given for improving paint adhesion and to increase corrosion resistance, wears resistance. Sludge sample will be collected at randomly from the tank, container and sample will be collected by method of quartering. Sample will be analysed for bulk density, moisture, oil content, chemicals used in process and loss of regulation etc. and for chemical contain depending on the chemical used in the process. TCLP Procedure will be adopted to find out probable interaction with (water & soil).This sludge is harmful to environment and contaminate soil and ground water. Ash obtain after estimation of loss of regulation will also be analysed for (N P K) Value in order to further predict the interaction after. Phosphatic sludge may be recycled to phosphate fertiliser used in agricultural purpose.Phosphatic Sludge management it is important not to lose the nutrients in sludge, to make use of its material and energy, and to dispose of it efficiently and sustainable. In literature review it study that the phosphatic sludge generated from automobile industry is treated reused as a soil conditioner in gardening and agricultural purpose also. All industrial units in Maharashtra have to operate within the jurisdiction of Maharashtra Pollution Control Board.(MPCB) .Pollution control boards to provide necessary treatment for the effluents. The phosphatic sludge generated from automobile industry, if not properly managed and discharged that can have a great impact on the environment .Contaminants in **n:** wastewater includes oil and grease, phosphates, hydrofluoric acid, ammonium fluoride products (ABF) etc. Oil and grease produce a layer on water, in. On the other hand, Nitrogen, Phosphates and Potassium, which are plant nutrient can cause eutroufication. There are several different methods for phosphatic sludge disposal. It is important to know whether the sludge is consistent enough to be landfilled. The toxicity of emissions (gaseous, liquid, and solid) depends on the presence of heavy metals and hardness. When improper operating conditions occur. Viz.1) Land filling 2) Incineration 3) Use of sludge in agriculture and other land use.

**Objectives**

Based on above literature paper, the objectives of the.

1. To ensure proper management of phosphatic sludge generated from of automobile industry.
2. To characterization, quantification and analysis of sludge.

3. To suggest suitable method of phosphatic sludge Reuse/disposal study are as follows:

3. **Methodologies**

Based on literature survey the following has been approach finalized.

1. To quantify Phosphatic sludge generated m3/d.
2. To collect samples for analysis from the sludge drying beds by quartering method.
3. To analyze physico-chemical characteristics of phosphate sludge on sludge drying bed for pertinent parameter moisture content, bulk density, ash, pH ,Oil & Grease, calorific value, Nitrogen, Phosphorus, potassium, Chloride, Sulphate, Iron, Calcium, Magnesium, Na & heavy metals viz. Chromium, Zinc.
4. To analyze heavy metals by Toxicity Characteristics of Leaching Procedure (TCLP method).
5. To find phosphatic Sludge volume Index and Sludge density Index.
6. The phosphatic sludge disposal method will be suggested depending upon characteristics.

## II- LITERATURE REVIEW

**Miss. Shrutakirti A. Mahajan et al. (2016)** Study the parameter O& G, Mn, Ca Ni & From the compressive strength study was found. The strength of bricks decreased with increase in phosphatic sludge concentration.

**Abhilash T. Nair et al (2015)** study the WTS Was investigated to remove phosphates from the UASB reactor effluent. 87% phosphate removal was obtained at WTS dose 13.8 g/L. Reuse of WTS Can bring both economic and environmental benefits.

**mansori M et al. (2013)** Mixtures of the phosphate sludge and a swelling clay were investigated and their properties shrinkage, density, water absorption and compressive strength were measured. the lightweight agglomerates can be produce at 900 or 1000 degree c. compressive strength were relatively low (2 – 4.5 Mpa)

**Pinarli et al (2011)** had examined the Stabilization and solidification of the waste phosphatic sludge using Portland cement and fly ash were studied**.** the WPS Content in the cement mortars varied from 5% to 15%

**Selnur Ucaroglu et al**. **(2012)** it can be conclude that Solidification/stabilization (S/S) of automotive phosphate coating sludge containing potentially toxic Heavy metals was studied. Unconfined compressive strength (UCS) and leaching behaviour tests was perform. Additives such as cement, lime, clay and others are used in S/S technology to immobilize waste constituents and convert them to more manageable and less toxic forms. It is possible to solidify and stabilize the phosphate coating sludge in a matrix of Portland cement.

## III-CONCLUSION

Large amount of phosphatic sludge waste in automobile industry. Phosphatic waste is hazardous and toxic and polluted effect to environment and soil also. So it is necessary to decide proper disposal method and treatment method to reduce toxicity .the phosphatic sludge in analyse and physic- chemical characteristic are find out and used this sludge as a fertilizer in gardening and agricultural purpose.

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