

# **"ENVIRONMENTAL EFFECTS OF PETROLEUM WASTE PRODUCT ON CONCRETE"**

(Sponsored By K.S.C.S.T., Bangalore)

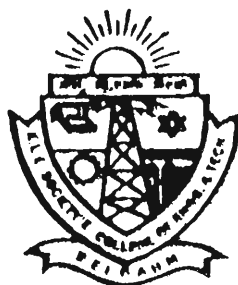
**A Project Report  
submitted in partial fulfillment of the requirements  
for the award of the Degree of  
Bachelor of Engineering in Chemical Engineering  
of the Visvesvaraya Technological University, Belgaum**

**Submitted by**

**Supriya Nirmalkar  
Komal Jadhav  
Devendra Rathod  
Nitesh Kumar**

**2KL07CH027  
2KL07CH010  
2KL07CH021  
2KL07CH019**

**Under the Guidance of  
Prof. Nandini M. Naik**



**DEPARTMENT OF CHEMICAL ENGINEERING  
K.L.E SOCIETY'S  
COLLEGE OF ENGINEERING AND TECHNOLOGY  
UDYAMBAG, BELGAUM – 590 008**

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM  
2010-2011**

## **ABSTRACT**

There is a current trend all over the world to investigate the utilization of processed and unprocessed industrial by-products and domestic wastes as raw materials in cement and concrete. This has a positive environmental impact due to the ever-increasing cost of waste disposal and stricter environmental regulations. Historically, reference books on concrete technology and cement chemistry indicate that the leakage of oil into the cement in older grinding units resulted in concrete with greater resistance to freezing and thawing. This effect is similar to adding an air-entraining chemical admixture to the concrete. The objective of the research reported in this paper was to investigate the effects of used engine oil and diesel on properties of fresh concrete. The main variables included the type and dosage of an air-entraining agent (commercial type, used engine oil, or new engine oil), mixing time, and the water/cement ratio of the concrete.

The leakage of oil into the cement in older grinding units has been reported to result in concrete with greater resistance to freezing and thawing. Accordingly, adding used engine oil to the fresh concrete mix could be similar to adding an air-entraining chemical admixture, thus enhancing some durability properties of concrete while serving as a technique of disposing the oil waste. Results indicated that used engine oil acted as an air-entraining agent by improving the slump and fluidity of the concrete mix, and enhancing the air content of fresh concrete.