

**MAJOR PROJECT**

**DEGRADATION STUDIES OF SELECTED MILK  
PACKAGING PLASTIC BAGS**

A Major Project Report submitted in the partial fulfillment for the award of the degree

of

**MASTER OF TECHNOLOGY (M. Tech)**

*In*

**POLYMER TECHNOLOGY**

*Submitted by*

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[2K11/PTE/05]



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July 2013

## DECLARATION

I, hereby declare that the dissertation entitled “**DEGRADATION STUDIES OF SELECTED MILK PACKAGING PLASTIC BAGS**” being presented here in the partial fulfillment for the award of the Degree of Master of Technology (Polymer Technology), is an authentic record of own work carried out by me under the guidance and supervision of Dr. Ram Singh, Assistant Professor, Department of Applied Chemistry and Polymer Technology, Delhi Technological University, Delhi.

I, further declare that the dissertation has not been submitted to any other Institute/University for the award of any degree or diploma or any other purpose whatsoever.

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## CERTIFICATE

This is to certify that the major project report entitled '**Degradation studied of selected milk packaging plastic bags**' which is submitted by **Mukesh Prakash Gocher** [2K11/PTE/05] in the fulfilment for the award of the degree of Master of Technology (M. Tech) in Polymer Technology to the Department of Applied Chemistry & Polymer Technology, Delhi Technological University, Delhi – 110042, is the student own work carried out by him under our supervision during 2012-2013. The matter embodied in this project report is original and not copied from any source without proper citation and has not been submitted to any other university or institute for the award of any degree or diploma.

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## **Abstract**

This Study reports the comparative analysis between Photo-degradation, Soil degradation and compost method of milk packets LDPE collected from retail market. The ability of soil and sun light and compost in degradation of LDPE films were investigated. The test is carried out to evaluate the degradation of films in both conditions up to 6 weeks. Degradation of films in soil & light were monitored using both tensile test and SEM micrograph. When the total biodegradation process of any organic substrate is considered the formation of microbial colony is critical to the initiation of biodegradation. Thus, the duration of the microbial colonization is an important factor that effects total degradation period as shown in SEM micrographs exposed films samples exhibit progressive changes towards degradation. Tensile test results exhibits there is a change in Tensile strength, tensile modulus & extension at break with respect to control film. Compost method is more efficient method of polymer degradation compare to natural weathering and soil burial as shown in the mechanical properties graphs.

*Key words: LDPE, Tensile Strength, Tensile Modulus, Extension at break, Photo-degradation, Biodegradation, soil burial, compost method.*