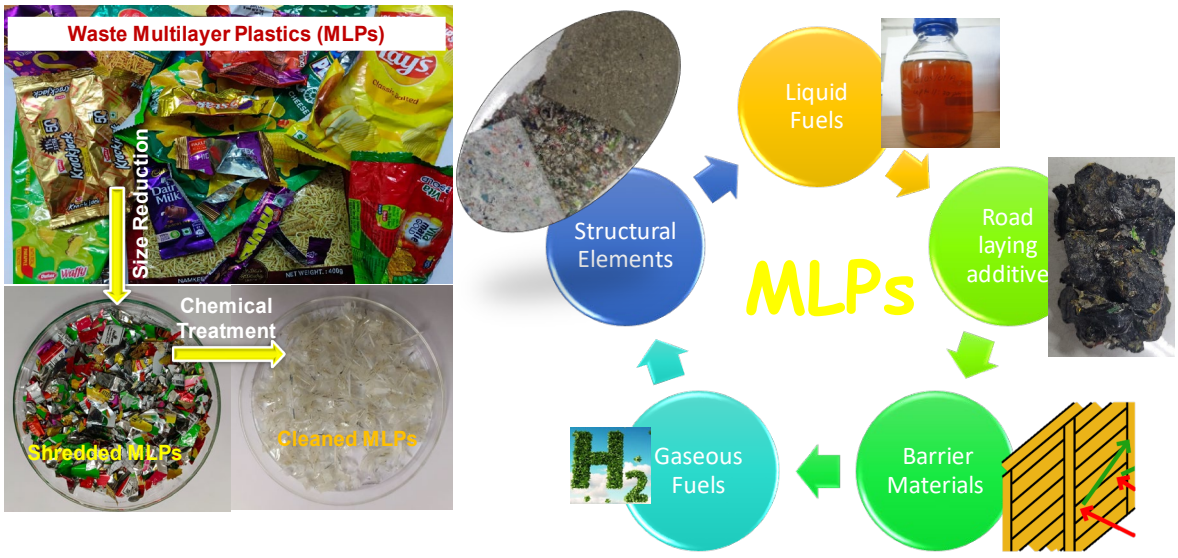
CSIR-NPL's Multilayer Plastic (MLP) Waste Recycling Technology Transfer

In line with aims of various National Missions and Programs such as Swachh Bharat, Waste to Wealth, Skill India, and to realize various Sustainable development goals, CSIR-National Physical Laboratory (CSIR-NPL), Delhi, has made significant contributions by development and licensing of technology pertaining to recycling of metal/ polymer laminate based multilayered plastics (MLP) for recovery of materials for technological applications. Among various plastic packagings, MLPs have become great environmental nuisance due to excessive littering owing to no commercial value in the absence of any effective recycling technology. Thus MLPs disposal is a serious concern with associated issues such as environmental pollution, loss of material reserves, health hazards and global warming.



In this scenario, CSIR-NPL's MLP recycling technology enables the environment friendly & facile recovery of neat (delaminated, deinked and demetallized) constituent polymer fractions from MLP waste streams for its further use/processing. The technology has been developed at CSIR-NPL under the leadership of Dr. Parveen Saini, Sr. Principal Scientist, alongwith team of researchers from different divisions of CSIR-NPL and also contribution by Miranda House (MH), University of Delhi, under active CSIR-NPL/MH MOU.

The developed knowhow is licensed to M/s Surya Compounds and Masterbatches Pvt. Ltd., Sonipat, for upscaling and commercialization. Being based on a scalable, eco-friendly, efficient and facile wet chemical process for the recycling of metal/polymer laminates including MLPs, for efficient recovery of polymeric fractions and metal compounds, present technology opens up plethora of usages of the recovered neat polymeric fractions. Particularly, they can be recycled into granules or finished products via melt-blending recycling or upcycling routes using conventional plastic processing setups. Alternatively, these fractions may also be used for various application like structures, packagings, insulation, composites or making based antistatic or EMI shielding compositions, for production of gaseous/liquid fuels, carbon nanostructures etc. Overall, the developed technology is expected to promote resource conservation, reduce MLPs littering & pollution hazards, ultimately enabling waste to wealth realization, building of circular economy framework and reduction of carbon footprint.