National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Identification of Microplastics in Personal Care Products
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Venue	: CE Seminar Hall
Date and Time	: 01 May 2025 (03:45 pm)
Abstract	: Microplastics (MPs) are emerging contaminants that pose significant risks to human health and the environment. Personal care products such as facial scrubs, toothpaste, and cosmetics often contain microbeads usually composed of polyethylene and polypropylene, contributing to environmental pollution. These MPs enter water bodies through wastewater discharge, leading to bioaccumulation in aquatic organisms and potential ingestion by humans. Identifying microplastics in personal care products is crucial for understanding their impact and developing mitigation strategies. Various analytical techniques are employed for microplastic identification. Confocal microscopy serves as an initial screening method, while Fourier Transform Infrared Spectroscopy (FTIR) and Raman Spectroscopy provide detailed polymer composition analysis. Scanning Electron Microscopy (SEM) enables high-resolution imaging and elemental analysis. The ingestion and accumulation of MPs in the human body raise concerns about long-term health implications, including potential toxic effects and bioaccumulation in tissues. Furthermore, microplastics persist in the environment, exacerbating plastic pollution in marine and terrestrial ecosystems. Addressing microplastic contamination requires enhanced research efforts, alternative material development, and regulatory frameworks to minimize their impact. Sustainable solutions, such as replacing synthetic microbeads with biodegradable alternatives in personal care formulations, are essential steps toward reducing microplastic pollution. Public awareness and stricter policies on microplastic usage in cosmetics and hygiene products can further aid in mitigating their environmental footprint.