

Will replace toxins used in process, reducing pollution level by 60 per cent

City-based NCL develops enzyme to process leather

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CITY-BASED National Chemical Laboratory (NCL) has developed an enzyme that makes the processing of leather, which now uses toxins that are highly polluting, more eco-friendly.

"The enzyme will replace lime and sulphide, which are highly toxic for the environment, but are used in the conventional de-hairing operation," NCL director Dr S Sivaram said.

Pre-tanning Operations involve soaking, liming, de-hairing, bating, degreasing and pickling which contribute to the pollution load, with around 55 to 60 per cent, com-

ing from dehairing operation because toxic chemicals like lime and sulphide are used. Therefore, if the chemicals are substituted with enzymes it can substantially reduce pollution, he added.

The residue — sludge and solids — from the use of lime are dumped as landfills and the effluents are discharged into rivers and streams. Stringent pollution control norms are being imposed by the state pollution control boards, forcing tanneries to adapt cleaner and eco-friendly technologies for leather manufacture. The use of the enzyme would only create an ecologically conducive atmosphere for workers, Sivaram added.

The enzyme will have the

advantages of improving quality of end-product, reducing pollution and is biodegradable, being a protein, said Sivaram. Besides, the hair, which is not damaged in the process, stands to be used as a value added by-product.

The leather industry is a highly polluting one and generates around 3 lakh tonnes of solid waste a year and a lot of effluents each day. This pollution proved to be a major setback for the leather industry. Nearly 400 tanneries had to close down leading to loss of foreign exchange revenue.

The Biochemical Sciences Division of NCL started work in 1998 along with the Central Leather Research Institute (CLRI). The project was

funded initially by the Department of Biotechnology and then under the Council of Scientific and Industrial Research - New Millennium Indian Technology Leadership Initiative programme.

Presently, NCL has produced the desired enzyme in quantities sufficient for semi-commercial trials. Sivaram added that this work would benchmark NCL's enzyme with other similar enzyme's available elsewhere and define its techno-commercial viability.

The work is still in the developmental stage and the full potential of this effort must await the final results of evaluation currently undergoing at CLRI.

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