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THE TIMES OF INDIA

NIIST technology may aid PSUs in curbing pollution

TNN | Jul 10, 2016, 09.04 AM IST



Thiruvananthapuram: The new technology developed by the National Institute for Interdisciplinary Science and Technology (NIIST) may help reduce acidic effluent flow from public sector undertakings (PSUs) such as Kerala Minerals and Metals Ltd (KMML) and Travancore Titanium Products (TTP) that causes deterioration of land and water bodies and pollution. The innovative technology developed by CSIR- NIIST to produce Titanium Dioxide (TiO₂) pigment from ilmenite ore from the black sands of Kerala will be a big boost to the PSUs, which are under attack from all corners for discharging polluting effluent.

While KMML causes land deterioration in areas around Chavara, effluent discharge from TTP pollutes Veli Lake. Also, the effluents are carcinogenic. These issues can be effectively addressed using the new technology. The TTP, which is involved in the production of titanium dioxide pigment, uses sulphate process using sulphuric acid to produce anatase grade TiO₂. It is considered lesser grade TiO₂ used for interior paints and electronic components, compared to KMML's rutile grade TiO₂ produced from chloride route using hydrochloric acid. The acidic discharge could be minimised further with the help of new technology.

The technology developed at NIIST proved successful in the production for titanium feedstock with more than 90% TiO₂ in laboratory and semi pilot plant scale.

"The process is most environment friendly with more than 70% reduction in acid consumption and bulk of the iron is removed in the form of oxides, free of excess acidity and chloride contamination," CSIR- NIIST director A Ajayaghosh said.

"I have apprised KMMML of this technology and it could be inducted with minimum investment. I will also write to the ministry concerned to take it forward for such state PSUs," Ajayaghosh said.

NIIST senior scientist Harikrishna Bhat said, "This new technology assures to reduce acidic effluent discharge from 70% to 75% by removing iron from ilmenite". Ilmenite found in coastal sands of Kerala contains 58% titanium dioxide (TiO₂), iron and iron oxide. The technology involves removing iron from ilmenite through metallisation and rusting process to separate 80% to 85% TiO₂, which is called synthetic rutile.