Development of indigenous construction chemicals: Superplasticizer for concrete & TiO_2 for paint applications (IHP240002 CSIR funded)

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Abstract and objectives:
India has very limited formulation technology for producing the active ingredients of the construction chemical. Indian industries prefer importing it because of huge demand and unavailability of the technological viable route. Technology for such construction chemical production is not readily available to the broader chemical industries and also Import issues relating with shipment, foreign dependency & import cost. The present proposal encourages the Indian companies to stop importing raw materials used in construction chemicals & producing it domestically in line with the Make in India initiatives.

Herein, following objectives is specified for the development of active ingredients component of construction chemical, on the concept of Aatma Nirbhar Bharat.

- To formulate the specific composition of the monomer, oxidizing agent, solvent for the formation of superplasticizers and synthesized plasticizer will be benchmarking by commercially available poly carboxylate ether based super plasticizers in terms of its density (kg/m3), slump test (mm), flow test (mm), air content (%) thereby improving workability, decrease the water demand & other parameters.
- To synthesize the titanium dioxide from titanium salt and furthermore it will be characterized by XRD, Raman spectroscopy, UV-Vis diffuse reflectance spectroscopy (UV-Vis DRS), and fourier-transform infrared (FTIR) spectroscopy for the paint/ pigments applications.