

Group Achievement Award 2017



Shri R. Shanmugam is conferred the **Group Achievement Award** for the year 2017 for his contribution in the field of **DEVELOPMENT OF ANNULAR & DISC MIXING TYPE CENTRIFUGAL EXTRACTORS INDIGENOUSLY FOR LIQUID - LIQUID EXTRACTION AT INDUSTRIAL SCALE .**

HWB have taken the responsibility of setting up industrial scale plants for extracting Uranium from phosphoric acid using organic solvent by liquid-liquid extraction (LLE) process. LLE technology is available with conventional mixer settlers. As industrial plants require handling of high acid-solvent flow rates, mixer settler's size will be enormously large and will result in large acid-solvent hold up inventory. For reducing inventory hold up, decision was taken to attempt process intensification. One of the several identified areas to achieve above objective is development of Centrifugal Extractor (CE). Two different designs namely annular mixing type and disc mixing type centrifugal extractors were selected and technology was developed indigenously for the same. Major milestones of activity are:

- Development of CFD model of centrifugal extractors
- Roto-Dynamic Analysis of model
- Selection of suitable material for solvent- phosphoric acid system
- Establishing design requirements, quality assurance & manufacturing/ fabrication procedures for non-metallic materials
- Design, engineering & fabrication of centrifugal extractors
- Mechanical and hydraulic performance testing of centrifugal extractors

The Chairman, Atomic Energy Commission has great pleasure in presenting the "Group Achievement Award 2017" to Shri R. Shanmugam in recognition of his outstanding contribution to the Department.



Dr. Anil Kakodkar, former chairman, Atomic Energy Commission and President, National Academy of Science, India is presenting award to Shri R. Shanmugam in presence of Shri K. N. Vyas, Secretary, Department of Atomic Energy and Chairman, Atomic Energy Commission.