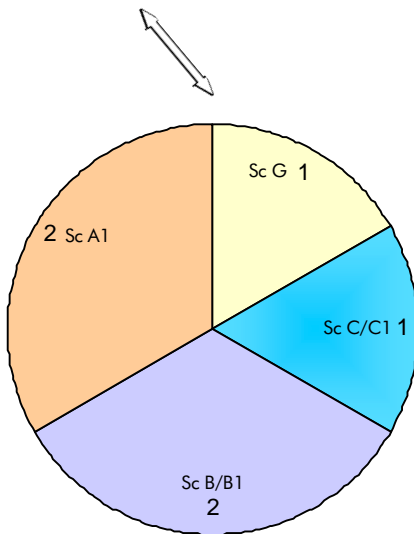
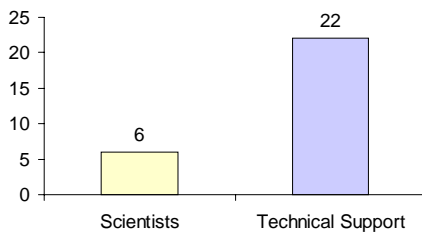


FRP PILOT PLANT

SUMMARY

Dr R M V G K Rao, Head



The Fibre Reinforced Plastics (FRP) Pilot Plant was involved this year in indigenisation efforts relating to the HANSA-3, 12.88m dia state-of-the-art sandwich panel radome for Doppler weather radars, X-band radomes for maritime patrol radar ground testing and a variety of very intricate carbon composite scaled down models for wind tunnel tests and design data generation for the LCA, as well as the CFRP blades for high pressure ratio axial flow fan blades.

Further, the Pilot Plant took big strides into advanced areas of composite technologies by establishing the feasibility of developing the Mark-II DWR radome (with larger panels than the Mark-I radome now successfully installed at SHAR Centre - Sriharikota, AP) for ISTRAC (ISRO), effecting further modifications on LCA models, developing certain futuristic and cost effecting technologies for the HANSA aircraft and via R&D studies on futuristic damage tolerant composites using new forms of reinforcements (contour woven, knitted, braided) and high temperature cure and high T_g matrices.

State-of-the-art component fabrication methodologies such as the resin ingression / injection and in-situ foam casting technologies were developed. These new technologies are being effectively used for the ongoing projects such as the radomes for the Jaguar aircraft, SARAS aircraft and CFRP axial flow fan blades.

Applied research studies continued in the area of synthesis and characterisation of high performance polymer matrices and in ceramic materials for high temperature applications. Other major initiatives taken during this year pertain to the rapid cure technologies and the efforts to replace the manual impregnation processes with the advanced mechanised fabric impregnation/ resin ingression techniques for the proposed HANSA stretch (6 seater) aircraft and large radome development activities.

The vision is now well defined and focused towards the techno-economic realisability of composite products by rapid moulding and rapid curing technologies coupled with eco-friendly concepts.