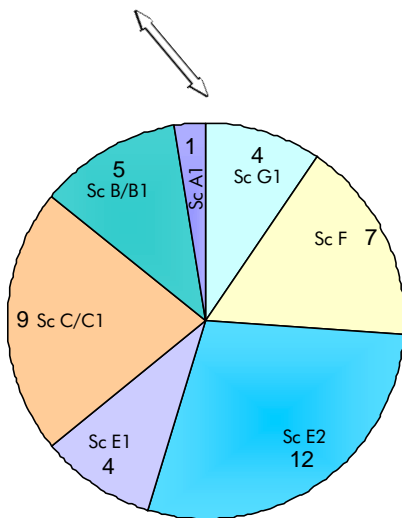
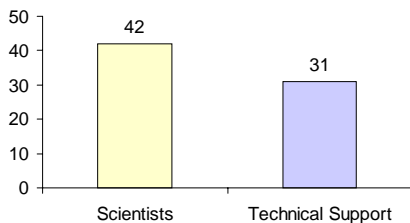


MATERIALS SCIENCE DIVISION

SUMMARY

Dr R V Krishnan, Head



The Materials Science Division is involved in R&D in advanced materials processing, materials characterisation, sophisticated instrumentation and failure analysis and accident investigation. On several of these, considerable advances have been made during the year.

The project to establish an integrated facility for carbon fibres and prepreps is making brisk progress with all the ordered equipment arriving on site. The mechanical erection is in the final stages. It is expected that initial trials would be taken up in the near future after all the electrical works are completed and the utilities become operational.

The Division has also taken a major responsibility in the area of ceramic, matrix components. As a part of the national effort, the Division will be working on developing the technologies for producing silicon carbon fibres from available precursors and for developing the technology of chemical vapour in filtration into ceramic preforms. Two projects have been granted and work has been initiated.

The field of smart materials has gained great importance over the last few years because of the applications in critical areas. As part of the national programme on smart materials the

Division has taken up two projects during the year to work on shape memory alloys and piezo ceramics. Initial work has commenced in these projects which would enable the development of technologies for producing thin wires of shape memory alloys and thin strips of piezo ceramics.

Failure analysis and accident investigation activities have continued with great emphasis and, during the year, 75 investigations were carried out for several organisations. Non-destructive examination was also carried out for a large number of components for the SARAS aircraft. This has formed an important and critical input for the project. During the year the performance of AVRA has been evaluated and it is found to compare very favourably with the performance of imported systems. With this assurance on the performance, NAL has been able to get orders for supply of AVRA systems. Cochin International Airport Limited and Indian Navy have placed specific orders for delivery of these systems. Developmental activities on precision instrumentation for measuring physical properties have been perfected and additional units have been given to universities on specific order. Efforts are under way to transfer the technology to private entrepreneurs so that these units can be made in larger numbers.