

Severe Accident Research Facility

This facility comprised of 36 kW DC Rectifier, 20 kW Induction heater and 10 kW infrared heater system and chiller system. The facility is developed to suit any high temperature experiments related to reactor thermal-hydraulic safety. The facility is made to take steam supply for the experiments. To mention experiments PHWR Calandria reflood and AHWR moderator as a heat sink are conducted.

Experiments have been performed to understand the reflooding process of a flat plate simulating the PHWR Calandria top section. The study is carried out as part of Severe Accident Management Guidelines verification study to assess the adequacy of reflooding rate in the Calandria Vault hook up. Experiments are conducted at an incident heat flux of 45-66 kw/m² (equivalent to 1% decay power), at a plate surface temperature of 300-600°C and at different flooding rates 1.5-3.8 lpm (scaled down). The plate is heated with 20 kW infrared heaters from bottom to maintain a constant heat flux. The experimental study has been conducted at Severe Accident Research Facility (SARF), Hall-3. The photograph of the experimental setup is shown in Fig. 1.



Figure 1 Severe Accident Research Facility (SARF)