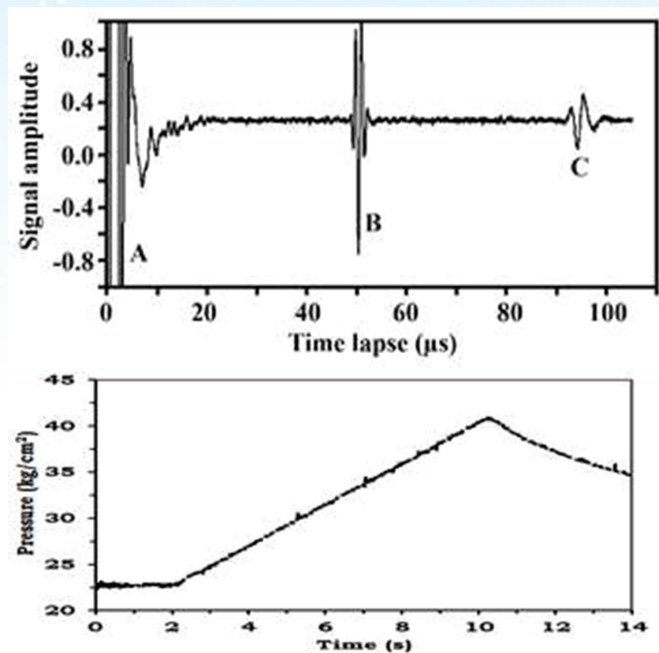


Ultrasonic Burning Rate Measurement System (UBRMS)

Ultrasonic Burning Rate (UBR) measurement system is technique developed by VSSC for measuring burning rate of solid propellants. The system employs ultrasound pulses to measure thickness of burning solid propellant.



The UBR measurement system consists of three units:

1. Hardware unit: The hardware unit of the system is a test setup in which the propellant specimen is burned.
2. Electronic unit: The electronic unit consists of a) ultrasonic transducer based electronics capable of acquiring data at very high sampling rate, b) data acquisition electronics to process the sensor data, c) computer to store/analyse the acquired test data, and d) ultrasonic and pressure transducers.

3. Processing Software: The entire operation of the UBR measurement system including electronic unit works upon a set of user-friendly graphical software packages. Commercially available data acquisition cards for processing of ultrasonic sensors can also be used, for which the software for initialization and data acquisition has to be developed separately.

Application

The UBR measurement system is used for measuring burning rate of solid rocket propellant. This system can be set up in a small space for routine measurements in propellant plants or research purpose in laboratories. The system is safer, has better measurement accuracy, and requires low manpower with considerable savings in cost and time compared to conventional method of propellant burning rates determination.