Indian Standard IS 13152 Part 1:2013 - Your Guide to Portable Solid Bio-Mass Cookstove

The **Portable Solid Bio-Mass Cookstove** (Chulha) is a compact, bio-mass-fuelled cooking appliance designed for efficient, clean cooking in both residential and community settings. It utilizes various forms of solid bio-mass—such as wood, agricultural residues, or briquettes—and is available in designs like natural and forced draft, with models that support continuous or batch feeding.

While purchasing a solid bio-mass cookstove it is expected that the Chulha is **efficient, emissions are less, quality of material** and **built is good** so as to make the chulha durable, further chulha is safe to operate on.

The BIS standard (IS 13152 Part 1:2013) for portable bio-mass cookstoves specifies parameters for **thermal efficiency**, **emission limits**, **material quality**, and **safety tests** to ensure that cookstoves meet these needs, with clear labelling and certification for quality assurance.

Key tests mentioned in the IS 13152 Part 1:2013 for Portable Solid Bio-Mass Cookstove

1. **Thermal Efficiency Test**:
    - Measures the efficiency of heat transfer from fuel to the cooking vessel.
    - Minimum required efficiency in order to fulfil the criteria of the IS is 25% for natural draft stoves and 35% for forced draft stoves.
2. **Emissions Testing**:
    - **CO and CO_2 Measurement**: Assesses carbon monoxide (CO) levels in the exhaust gases to ensure safety. For both natural and forced draft stoves, CO emissions must not exceed 5 g/MJ of delivered energy.
    - **Total Particulate Matter (TPM)**: Measures particulate emissions, with limits set at 350 mg/MJ for natural draft stoves and 150 mg/MJ for forced draft stoves.
3. **Surface Temperature and stability Test**:
    - Checks the temperature of parts typically touched during operation, like handles.
    - Surface temperatures must not exceed 60°C to ensure safe handling.
    - Specifies materials and thickness standards (e.g., stainless steel, cast iron) to ensure longevity and structural integrity.
    - Ensures the cookstove remains stable when tilted up to 15° from the vertical position, both when full and empty.

In summary these tests mentioned in the **IS 13152 Part 1:2013** ensure that portable bio-mass cookstoves meet required standards for **efficiency**, **emissions**, **durability**, **safety**, and **usability** in real-world conditions, making them reliable and safe for consumers. Next time you purchase **Portable Solid Bio-Mass Cookstove** (Chulha), look for the **BIS mark** to ensure they meet these standards, giving you peace of mind for your safety and performance.