IS 251:2024, Soda Ash, Technical - Specification

IS 251:2024 specifies technical requirements for soda ash (anhydrous sodium carbonate, Na_2CO_3), widely used in industries like glass, detergent, textile, and water treatment. This standard classifies soda ash into three grades—dense, medium, and light—based on bulk density, optimizing its use for specific applications.

Key Specifications:

- **Purity**: Requires a minimum of 98.5% Na_2CO_3 by mass for efficiency in chemical processes.
- **Water Insolubility**: Limits insoluble matter to 0.15% to maintain product quality.
- **Impurities**: Controls sulfate (max 0.08%), chloride (max 1.0%), and iron (max 0.007%) levels to prevent unwanted reactions or discoloration, especially in glass manufacturing.

Essential Tests:

1. **Bulk Density**: Measures density to categorize grades (dense: 951–1250 kg/m^3).
2. **Volatile Matter**: Ensures moisture is below 2%, preventing clumping.
3. **Sieve Analysis**: For particle size distribution, critical in flat glass production.
4. **Chemical Composition**: Verifies Na_2CO_3 content and impurity levels via titration and spectrometry.

Products must be packaged in moisture-proof containers and clearly labeled for traceability. These specifications ensure soda ash is high-quality, safe, and efficient across its diverse applications.