floXlab

SDIM

Slake Durability Index Machine

Assessment of rock weathering & abrasion resistance

SDIM — twin-drum bench-top apparatus for slake durability testing

Geotechnical & Rock Mechanics Testing Equipment

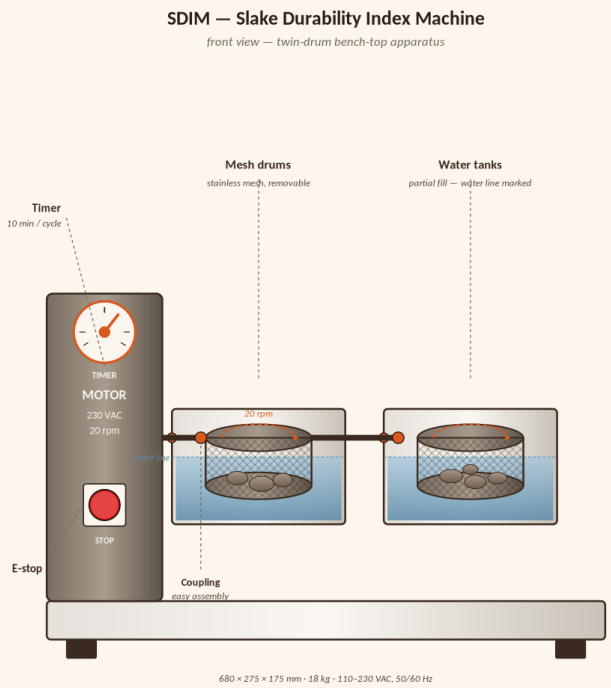
Overview

What the SDIM does, in brief

- Twin-drum slake durability test for weak rocks
- Determines the Slake Durability Index Id2
- Two desiccation–imbibition cycles per ASTM D4644
- Two stainless mesh drums, removable
- 20 rpm rotation with timer-controlled cycle
- Partially submerged drums — water tanks with line
- Compact bench-top — 18 kg, plug & play
- Compliant with ASTM D4644 & ISRM Suggested Method

Main Components

Front view — annotated diagram



Mesh Drums

Two stainless drums — easy removal & cleaning

Water Tanks

Two tanks with marked water line — partial fill

Drive Motor

230 VAC, 20 rpm constant rotation

Timer Knob

10-minute cycle setpoint — auto-stop

Coupling & Locking Pins

Easy assembly between drum and motor

Emergency Stop

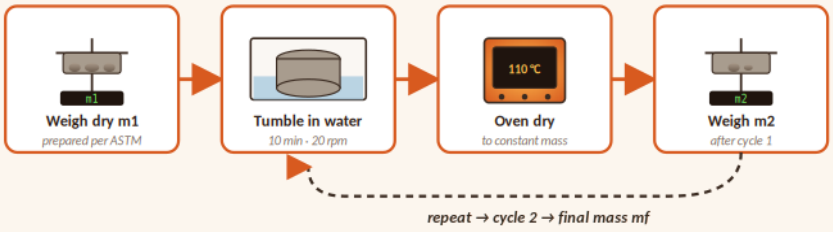
Immediate halt of rotation, mushroom button

Measurement Principle

Slake durability test — ASTM D4644

Slake durability cycle & classification

ASTM D4644 / ISRM Suggested Method



Slake Durability Index

$$Id2 = mf / m1 \times 100$$

m1 = initial dry mass · mf = final dry mass
reported as % retained after 2 cycles

Durability classification (ISRM)

Id2 (%)	Durability class
0 – 25	very low
25 – 50	low
50 – 75	medium
75 – 90	high
90 – 95	very high
95 – 100	extremely high

How the test works

- 10 rock fragments weighed dry — m1
- Loaded in mesh drums, partially submerged
- 10 min rotation at 20 rpm (cycle 1)
- Recovered, oven-dried & re-weighed
- Second wetting–rotation–drying cycle
- Id2 = mass retained after 2 cycles, in %

Technical Specifications

Test method	Slake durability — ASTM D4644	**Output**	Index Id2 (% retained)
Standards	ASTM D4644, ISRM Suggested Method	**Total weight**	18 kg
Test cycle	Two desiccation–imbibition cycles	**Dimensions**	680 × 275 × 175 mm
Rotation speed	20 rpm	**Operating range**	5 – 40 °C, indoor use
Cycle duration	10 minutes per cycle	**Power supply**	110 – 230 VAC, 50/60 Hz
Drum capacity	Two stainless mesh drums (removable)	**Safety**	E-stop + locking pins on drums

Applications

Where the SDIM delivers value

Tunnelling & TBM

Weathering forecast for tunnels and underground excavations in shales and mudstones

Mining

Waste-rock characterisation and slope stability for open-pit mining

Civil Engineering

Site investigation in weak sedimentary rocks — embankments, foundations

Quarrying & Aggregates

Aggregate durability check for road, railway and dam construction

Geomechanics R&D

Weathering and disintegration studies of weak rocks in research labs

Field & Lab Use

Routine QC of cuttings and core samples in service laboratories

Get in Touch

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