CHIP & CUT MODULE

Recommended for cases where harsh or abrasive environments may cause cutting and chipping on an elastomeric contact surface.

The chip and cut module measures the material's resistance to damage from impacts with sharp surfaces. This test can be related to real-world conditions that lead to pitting and chunking of rubber surfaces. It is essential for tire tread materials and other applications subjected to wear via contact/impact with rigid, macro-scale, small-radius, convex surfaces such as stones.

Experiment Overview

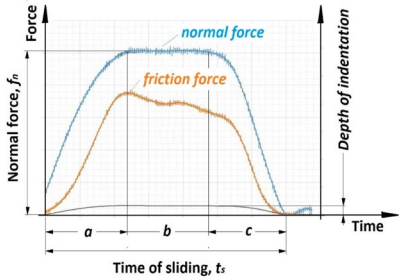
- Tested on Coesfeld Instrumented Chip & Cut Analyzer (ICCA©)
- Indenter pushed into round rotating specimen w/repeated impacts
- Experimental data recorded: Normal force, tangential force, and indentation depth as a function of time for each impact
- All tests performed at lab ambient temperature (23°C)

Use with

- Tire tread applications
- Belts – especially in mining
- Impact damage applications

Analysis and Reporting

- Test data evaluated to determine Chip-Cut damage parameter, P, by integrating the fluctuations in tangential force. A lower value of P indicates greater resistance to chip-cut damage.
- Weight loss recorded during experiment
- Images of specimens before and after testing



Peak normal force, impact duration and frequency are specified as test inputs. Longitudinal friction force and indenter penetration are monitored during the test.

Images of test specimens show wear damage that occurred during the test. Mass loss is reported along with Coesfeld's P-parameter.

FPM-CC-1 Basic Procedure (Recommended for Materials Development) See Chart

- 1 load case x 3 replicates per compound

FPM-CC-5 Advanced Procedure (Recommended for Simulation) See Chart

- 5 load cases x 3 replicates per compound

Provide 100 g of uncured compound per specimen to be tested,
or request a quote to rent our mold to produce your own specimens.

Compounds	Load Cases 1	2	3	4	5
1	685	1370	1575	2100	2625
2	1370	2100	2640	3520	3950
3	1575	2640	3555	4380	5475
4	2100	3520	4380	5840	7300
5	2625	3950	5475	7300	9125

*Curing runs cost $150 each and produce 6 cured specimens per run.