FlameBlock (Pty) Ltd
15 Prinsloo Street,
Alberton North,
Alberton, 1449, Gauteng
P.O. Box 145899, Bracken Gardens, 1452
VAT Registration No. 4400295251
Tel: 011 869 2142
admin@flameblock.co.za
www.flameblock.co.za

Certification and Testing.

What is FlameBlock Lithium Black?

FlameBlock Lithium Black is uniquely formulated fire extinguishing agent that was specifically developed to extinguish lithium-ion battery fires.

Certification.

There is no SABS standard for Lithium-ion Battery extinguishers.
Europe and Britain has approved a standard at the end of 2023: – NTA 8133

Testsing

FlameBlock has conducted thorough testing on various batteries using diverse methodologies.

Test Procedures and Results:

NTA 8133:
Utilized 24 x 6Amp 3.7V Lithium-ion Battery cells.
Overcharged 1 pouch and extinguished upon ignition.
Post 20 minutes, the following criteria were met:
Absence of flame re-ignition.
Prevention of thermal runaway.
At least 1 battery cell fully charged.
FlameBlock Lithium Black passed the NTA 8133 test successfully.

Other Tests:

Overcharging of batteries:

Battery Management System (BMS) removed.
Battery connected to power supply and charged until ignition of one or more battery cells occurred, and then extinguished.

Overheating of batteries:

Batteries were ignited using a mixture of hydraulic oil and petrol.
Batteries were ignited using an external heat source i.e. gas flame
Batteries were extinguished upon thermal runaway.

Damaging of batteries:

Battery cell damaged using a nail gun.
Batteries were extinguished upon ignition.

Various batteries, including pouch and cylinder types from solar power battery packs, electric scooters, cellphones, and electric tools, were used in testing FlameBlock Lithium Black.
Batteries were also supplied by Potensa Custom Energy Solutions in Isando Kempton Park who, supplied, connected, and charged the batteries.

Testing Procedures:

All tests conducted in a controlled environment.
Videotaped documentation of all tests.
Temperature measurements taken using FLIR Temperature cameras and Thermo temperature guns.
Independent observers present during each test.
Battery cells enclosed in protective cages to mitigate explosion risks.
Extinguishment initiated after thermal runaway onset.

Testing results:

Fire extinguished within 30 seconds.
Battery cell temperature reduced to 80°C within 2 minutes post-extinguishment.
Surface temperature remained below 80°C without additional intervention.
Minimized gas escape due to FlameBlock Lithium Black layer formation.
Batteries monitored for 20 minutes post-extinguishment, with no re-ignition observed.
Battery cells monitored for a month afterward to detect any potential re-ignition.

If you have any queries please do not hesitate to contact me.

Ferdinand van Zyl
Director FlameBlock