Safety Data Sheet

Product: Megger MIT515, MIT525, MIT1025 and MIT1525
Megger S1-568, S1-1068 and S1-1568

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1. Identification

Megger MIT515, MIT525, MIT1025 and MIT1525 (Megger Insulation Tester series)
Megger S1-568, S1-1068 and S1-1568 (Megger Series-One insulation testers)

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An internal battery provides low voltage electrical energy to operate the instrument. It may be charged and discharged many times over its working life of several years. Battery packs or individual cells **must NOT** be dismantled, opened, taken apart, immersed in water or disposed of in landfill or by fire.

Battery packs must be obtained from the instrument manufacturer for this safety datasheet to apply. If permitted by the manufacturer, cells of various technologies may be obtained from other sources and this datasheet gives general guidance for likely cell types. A specific safety datasheet has to be obtained from third-party suppliers of replacement cells.

2. Chemical and Material Hazard

When used in accordance with the manufacturer's instructions there is no material hazard in handling or operating the instrument or the battery.

Hazards:
H242: Heating may cause fire.

If a fault occurs, the battery may vent a flammable gas or release its chemical contents (electrolyte). Hazards on contact with electrolyte: refer to this safety datasheet.

Hazards from battery or cell fault:
H303+H333: May be harmful if swallowed or inhaled
H315+H320: Causes skin and eye irritation

3. Composition

Instrument exterior:

Common name	CAS number	EC number	
ABS	9003-56-9	920-401-2	
Polycarbonate	25037-45-0	920-874-5	
Nylon 6	25038-54-4	928-264-0	
Acetyl (POM)	24969-26-4	607-470-1	
Polypropylene	9010-79-1	925-154-4	
Silicone	7440-21-3	231-130-8	

Interior electrical circuits:

Common name	CAS number	EC number	
Copper	7440-50-8	231-159-6	
Continuous Filament Glass Fibre	65997-17-3	266-046-0	
Epoxy resin	---	---	

The glass fibre is bonded with the epoxy resin and will not release powder or fibre fragments unless crushed or drilled.

Internal components comprise various other materials including (but not limited to) Tin, aluminium foil, iron loaded ceramic, zinc-plated steel, stainless-steel, tin, brass gold, and silver in small quantities.

Battery and cell types:

Lithium-Ion (rechargeable cells)

Common name	CAS number	EC number	
Lithium cobalt oxide	12190-79-3	235-362-0	
Iron	7439-89-6	215-168-2	
Aluminium foil	7429-90-5	231-072-3	
Copper foil	7440-50-8	231-159-6	
Graphite (carbon)	7782-42-5	231-955-3	
Poly(vinylidene fluoride)	24937-79-9	607-458-6	
Lithium hexafluorophosphate	21324-40-3	244-334-7	

4. First-Aid Measures

For any battery and cell type electrolytes:

Eye contact: **Do NOT** touch the eyes with contaminated fingers. Rinse eyes and under the eyelids thoroughly with plenty of water. Remove contact lenses if this is easy to do. If symptoms persist, consult a doctor.

Skin contact: Remove contaminated clothing. Wash the skin with soap and water. If skin irritation persists, or there is an allergic reaction, consult a doctor.

Inhalation: Move to a well ventilated area with fresh air. If symptoms persist, consult a doctor.

Ingestion or swallowing: Consult a doctor. **Do NOT** induce vomiting. Drink plenty of water. If a lithium-metal (button cell) has been swallowed, take honey or sucralfate suspension.

Note to doctor: Treat symptomatically.

Electric shock.
There is no risk of electric shock from isolated battery pack or cells. The instrument itself may be connected to exposed live circuits, and is able to generate hazardous live voltage that will energise conductors connected to its measurement leads. Operators must read and follow the manufacturer's safety warmings provided with the instrument and should be trained for first aid treatment of electric shock. Untrained staff must not use the equipment.

5. Fire-Fighting Measures

The instrument is made of fire retardant material, but will burn if a source of ignition has been applied for an extended time.

Cells may rupture or explode when heated. Lithium batteries have a flammable electrolyte which may ignite and produce sparks. If cells are overcharged or mechanically damaged they may ignite.

Suitable extinguishing media for the instrument:
CO_2, dry chemical or sand.
The instrument contains a lithium metal primary cell. Water spray should not be used.

Suitable extinguishing media for a single battery pack or separate non-lithium metal cells:
CO_2, dry chemical or sand.
Cold water spray may be used if there is no electrical hazard.

For large quantity of battery packs or non-lithium metal cells:
CO_2, dry chemical.
Cold water spray may be used if there is no electrical hazard, but hydrofluoric acid may be released if the electrolyte comes into contact with water.

Fire may release carbon monoxide (CO), carbon dioxide (CO_2) or hydrogen fluoride (HF).

Precautions for firefighters: Use self-contained breathing apparatus, protective clothing, and eye and face protection.

6. Accidental Release Measures

Wear protective gloves when handling damaged battery packs or cells.

Avoid contact with eyes and skin. Ensure adequate ventilation. Remove all sources of ignition.

Use binding material such as sand or sawdust to absorb liquids and gels and dispose of contaminated waste according to local regulations.

7. Handling and Storage

No special precautions need be taken when handling undamaged or spent battery packs or cells.

Ensure that battery packs and cells are stored so that they cannot be short-circuited by metal objects or each other. Separate large quantities into small amounts with adequate separation to prevent the spread of fire. Do not store with oxidisers or acidic material.

Store batteries and cells charged to 20 % to 60 % capacity in dry, well ventilated conditions. Rechargeable cells should not be stored for longer than three months without being recharged.

For up to three months batteries and cells may be stored within a temperature of -10 °C and +40 °C (+14 °F and +104 °F).
For longer storage periods, the temperature should be within 0 °C and +35 °C (+32 °F and 95 °F).

8. Exposure Control and Personal Protection

Key to codes in the table below:

Code	Statement
R10	Flammable.
R20/22	Harmful by inhalation and if swallowed.
R22	Harmful if swallowed.
R43	May cause sensitization by skin contact.
R48/23	Toxic: danger of serious damage to health by prolonged exposure through inhalation.
R49	May cause cancer by inhalation.
R50	Very toxic to aquatic organisms.
R53	May cause long-term adverse effects in the aquatic environment

Code	Statement
S16	Keep away from sources of ignition - No smoking
S22	Do not breathe dust
S24	Avoid contact with skin
S24/25	Avoid contact with skin and eyes
S25	Avoid contact with eyes
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S33	Take precautionary measures against static discharges
S36/37	Wear suitable protective clothing and gloves
S37	Wear suitable gloves
S45	In case of accident or if you feel unwell seek medical advice immediately (show the label where possible)
S53	Avoid exposure - obtain special instructions before use
S60	This material and its container must be disposed of as hazardous waste
S61	Avoid release to the environment. Refer to special instructions/safety data sheet
S62	If swallowed, do not induce vomiting: seek medical advice immediately (show the label where possible)

Code	Statement
F	Highly flammable
N	Harmful to the environment
T	Toxic
Xn	Harmful
Xi	Irritant

Material	Risk	Safety	Hazard	Exposure control and personal protection
Lithium cobalt oxide	R22 R43 R50 R53	S24 S37 S60 S61	Xn N	*Airborne Exposure Limits:* 0.1 mg/m^3 (TWA) as metal dust 0.02 mg/m^3 as compound
Aluminium foil	R17 R15 R36/38 R67 R65 R62 R51/53 R48/23 R38 R11	S26 S62 S61 S36/37 S33 S16	F Xn Xi	*Airborne Exposure Limits:* - OSHA Permissible Exposure Limit (PEL): 15 mg/m^3 (TWA) total dust and 5 mg/m^3 (TWA) repairable fraction for Aluminium metal as Al –ACGIH Threshold Limit Value (TLV): 10 mg/m^3 (TWA) Aluminium metal dusts

Material	Risk	Safety	Hazard	Exposure control and personal protection
Copper foil	R11 R36 R37 R38	S26 S16 S61 S36/37	F N Xn Xi	*Airborne Exposure Limits:* Copper Dust and Mists, as Cu: - OSHA Permissible Exposure Limit (PEL): 1 mg/m^3 (TWA) - ACGIH Threshold Limit Value (TLV): 1 mg/m^3 (TWA) Copper Fumes: - OSHA Permissible Exposure Limit (PEL): 0.1 mg/m^3 (TWA) - ACGIH Threshold Limit Value (TLV): 0.2 mg/m^3 (TWA)
Graphite (carbon)	R36/37/38, R36/37 R20 R10	S22 S24/25	F Xn Xi	*Airborne Exposure Limits:* - OSHA Permissible Exposure Limits (PELs): activated carbon (graphite, synthetic): Total particulate = 15 mg/m*3*
Poly(vinylidene fluoride)		S22 S24/25		

9. Physical and Chemical Properties

Appearance: solid in various colours.

10. Stability and Reactivity

All materials are stable. No decomposition will occur if the instrument is stored, used and ultimately disposed of as directed.

Keep the instrument, cells and battery packs away from open flames, hot surfaces, and sourced of ignition. Do not crush or incinerate.

Damaged, open cells may release hydrofluoric acid or carbon monoxide.

11. Toxicological Information

No damage to health is expected from normal use of this product by trained personnel according to the manufacturer's instructions.

12. Ecological Information

There are no data on aquatic toxicity, bioaccumulation or other adverse effects from released electrolyte from the battery pack or cells. See section 13 on safe procedures for the disposal of damaged parts.

Ecological damage is not expected in normal use.

13. Disposal Guidance

Damaged battery pack or cells: Contaminated material must be collected and disposed of according to local regulations.

Do NOT dispose of damaged or undamaged products to landfill, to sewage systems or in fire.

End of life: the instrument must be recycled as waste electrical equipment according to local regulations. Consult the user instructions from the manufacturer.

14. Transport Information

Damaged battery packs and cells **must NOT** be sent by air or maritime transport, either within an instrument or packed separately.

Air
This product, with batteries and cells, is suitably packaged by the supplier to meet the International Air Transport Association (IATA) and the International Civil Aviation Organisation (ICAO) requirement for air transport, and United Nations (UN) Recommendation T1-T8 for the Air Transport of dangerous goods. Class 9 – Miscellaneous goods.

Maritime
This product, with batteries and cells, is suitably packaged by the supplier to be safe for Maritime transport as International Maritime Dangerous Goods (IMDG) Class 9 – Miscellaneous goods that are not a marine pollutant.

Land
The product does not fall into a UN regulated class of hazardous goods for land transport.
Unregulated Class 9a: (Miscellaneous goods) Contains lithium batteries.

15. Regulatory Information

The product meets the regulatory requirements for safety in the region to which it is shipped by the manufacturer. Consult the manufacturer for conformity declarations and certification.

16. Other Information

The data on the material composition, handling and transport were taken from the latest editions of the respective manufacturers' datasheets.

This safety datasheet provides information for use in the event of damage to the product. For undamaged products, this safety datasheet is only a general guide. Consult the manufacturer's instructions for use for full safety information when handling and using the product in normal conditions.

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally contractual relationship.

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