LR03 (AAA), LR6 (AA), LR14 (Size C), LR20 (Size D), 6LR61 (9V)

Material Safety Data Sheet

Issue Date:**01/01/2026**

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1. Product Identifier

Product name	LR03 (AAA), LR6 (AA), LR14 (Size C), LR20 (Size D), 6LR61 (9V)
Other means of identification	Not Available

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Power the flashlight and remote control
Uses advised against	Not Applicable

1.3. Details of the supplier of the safety data sheet

Supplier name	**MMD Hong Kong Holding Limited**
Address	Unit 1208-11, 12/F, C-Bons International Center, 108 Wai Yip Street, Kwun Tong, Hong Kong
Telephone	0086-755-3635 8914
Fax	
Emergency telephone	0086-755-3635 8914
Email	
Importer name	
Address	
Telephone	
Email	

1.4. Emergency telephone number

Association / Organization	
Emergency telephone numbers	
Other emergency telephone numbers	

SECTION 2 HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Not considered a hazardous mixture according to Reg. (EC) No 1272/2008 and their amendments. Not classified as Dangerous Goods for transport purposes.
The product is outside of the scope of GHS system.

Classification according to regulation (EC) No 1272/2008 [CLP]	Not Applicable

2.2. Label elements

Hazard pictogram(s)	Not Applicable
SIGNAL WORD	**NOT APPLICABLE**

Health Hazards:

The internal materials of battery are corrosive to the eyes and skin. Avoid directly inhaling and contacting with the internal materials of battery.

Environmental Hazards:

The internal materials of battery may be harmful to the environment. Pay attention to water system.

Continued...

2.3. Other hazards

REACH - Art.57-59: The mixture does not contain Substances of Very High Concern (SVHC) at the SDS print date.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

3.1. Substances

See 'Composition on ingredients' in Section 3.2

3.2. Mixtures

1. CAS NO 2. EC NO	Ingredient	LR6 Concentration	LR03 Concentration	LR14 Concentration	LR20 Concentration	6LR61 Concentration
1.1313-13-9 2.215-202-6	Manganese dioxide	33-40%	30-38%	36-40%	39-49%	28-38%
1.7439-89-6 2.231-096-4	Iron	14-20%	15-25%	11-20%	10-20%	16-26%
1.7440-66-6 2.231-175-3	Zinc	13-20%	10-20%	14-20%	14-22%	8-16%
1.7732-18-5 2.231-791-2	Water	7-11%	7-11%	7-12%	7-15%	8-15%
1.1310-58-3 2.215-181-3	Potassium hydroxide	5-9%	4-8%	6-9%	5-9%	3-7%
1.7440-50-8 2.231-159-6	Copper	2-4%	2-5%	1-2%	0.5-0.8%	2-4%
1.7782-42-5 2.231-955-3	Graphite	2-3%	2-3%	2-3%	2-4%	2-3%
1.63428-84-2 2.805-352-6	Nylon	1-2%	0.8-2%	1-3%	1-3%	0.5-1.5%
1.9002-86-2 2.618-338-8	PVC	1-2%	1-2%	2-3%	1-2%	1-2%
1.7429-90-5 2.231-072-3	Aluminum	0.2-0.6%	0.1-0.5%	0.2-0.6%	NA	NA
1.26062-94-2 607-857-5	Poly(1,4-butylene tere-phthalate) PBT	NA	NA	NA	NA	8-12%
1.7440-02-0 2.231-111-4	Nickel	NA	NA	NA	NA	0.05-0.1%

SECTION 4 FIRST AID MEASURES

4.1. Description of first aid measures

Eye Contact	Generally not applicable. If any issue, call a physician immediately.
Skin Contact	Generally not applicable. If any issue, call a physician immediately.
Inhalation	Generally not applicable. If any issue, call a physician immediately.
Ingestion	Generally not applicable. If any issue, call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11

Continued...

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 FIREFIGHTING MEASURES

5.1. Extinguishing media

Metal dust fires need to be smothered with sand, inert dry powders. Suitable: dry chemical, carbon dioxide and appropriate foam.
DO NOT USE WATER, CO2 or FOAM.

- **DO NOT** use halogenated fire extinguishing agents.

5.2. Special hazards arising from the substrate or mixture

Fire Incompatibility	Reacts with acids producing flammable / explosive hydrogen (H2) gas Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result

5.3. Advice for firefighters

Fire Fighting	Alert Fire Brigade and tell them location and nature of hazard. Wear breathing apparatus plus protective gloves.
Fire/Explosion Hazard	Combustible. Will burn if ignited. Combustion products include: carbon monoxide (CO) carbon dioxide (CO2) metal oxides Other pyrolysis products typical of burning organic material. May emit corrosive fumes.

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

See section 8

6.2. Environmental precautions

See section 12

6.3. Methods and material for containment and cleaning up

Minor Spills	Clean up all spills immediately. Secure load if safe to do so.
Major Spills	Clear area of personnel. Clean up all spills immediately. Wear protective clothing, safety glasses, dust mask, gloves.

6.4. Reference to other sections

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING ANDSTORAGE

7.1. Precautions for safe handling

Safe handling	Limit all unnecessary personal contact. Wear protective clothing when risk of exposure occurs.
Fire and explosion protection	See section 5
Other information	Store away from incompatible materials.

7.2. Conditions for safe storage, including any incompatibilities

Suitable container	Generally packaging as originally supplied with the article or manufactured item is sufficient to protect against physical hazards. If repackaging is required ensure the article is intact and does not show signs of wear.
Storage incompatibility	Avoid strong acids, acid chlorides, acid anhydrides and chloroformates. Avoid reaction with oxidising agents. Keep dry. Keep away from heat, flame.

7.3. Specific end use(s)

See section 1.2

Continued...

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

DERIVED NO EFFECT LEVEL (DNEL)

Not Available

PREDICTED NO EFFECT LEVEL (PNEC)

Not Available

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)	manganese dioxide	Manganese and inorganic manganese compounds (as manganese)	0,2; 0,05 mg/m3	Not Available	Not Available	Not Available
Poland Workplace Maximum Allowable Concentration (Polish)	manganese dioxide	Mangan i jego związki nieorganiczne - w przeliczeniu na Mn- frakcja wdychalna	0,2 mg/m3	Not Available	Not Available	Not Available
Poland Workplace Maximum Allowable Concentration (Polish)	manganese dioxide	Mangan i jego związki nieorganiczne - w przeliczeniu na Mn- frakcja respirabilna	0,05 mg/m3	Not Available	Not Available	Not Available
Poland Workplace Maximum Allowable Concentration (Polish)	potassium hydroxide	Wodorotlenek potasu	0,5 mg/m3	1 mg/m3	Not Available	Not Available
Poland Workplace Maximum Allowable Concentration (Polish)	copper	Miedź i jej związki nieorganiczne - w przeliczeniu na Cu	0,2 mg/m3	Not Available	Not Available	Not Available
Poland Workplace Maximum Allowable Concentration - Dust (Polish)	graphite	Pyły grafitu a) pyły grafitu naturalnego: - frakcja wdychalna1	4 mg/m3	Not Available	Not Available	1) Frakcja wdychalna - frakcja aerozolu wnikająca przez nos i usta, która po zdeponowaniu w drogach oddechowych stwarza zagrożenie dla zdrowia.
Poland Workplace Maximum Allowable Concentration - Dust (Polish)	graphite	Pyły grafitu a) pyły grafitu naturalnego: - frakcja respirabilna2	1 mg/m3	Not Available	Not Available	2) Frakcja respirabilna - frakcja aerozolu wnikająca do dróg oddechowych, która stwarza zagrożenie dla zdrowia po zdeponowaniu w obszarze wymiany gazowej.
Poland Workplace Maximum Allowable Concentration (Polish)	graphite	Grafit a) grafit naturalny - frakcja wdychalna	4 mg/m3	Not Available	Not Available	Not Available
Poland Workplace Maximum Allowable Concentration (Polish)	graphite	Grafit a) grafit naturalny - frakcja respirabilna	1 mg/m3	Not Available	Not Available	Not Available
Poland Workplace Maximum Allowable Concentration (Polish)	aluminium	Glin metaliczny, glin proszek (niestabilizowany)- frakcja respirabilna	1,2 mg/m3	Not Available	Not Available	Not Available
Poland Workplace Maximum Allowable Concentration (Polish)	aluminium	Glin metaliczny, glin proszek (niestabilizowany)- frakcja wdychalna	2,5 mg/m3	Not Available	Not Available	Not Available
Poland Workplace Maximum Allowable Concentration (Polish)	nickel	Nikiel i jego związki, z wyjątkiem tetrakarbonylku niklu - w przeliczeniu na Ni	0,25 mg/m3	Not Available	Not Available	Not Available

8.2. Exposure controls

8.2.1. Appropriate engineering controls	Articles or manufactured items, in their original condition, generally don't require engineering controls during handling or in normal use. Exceptions may arise following extensive use and subsequent wear, during recycling or disposal operations where substances, found in the article, may be released to the environment.
8.2.2. Personal protection	
Eye and face protection	▸ Safety glasses with side shields. ▸ Chemical goggles. No special equipment required due to the physical form of the product.
Skin protection	See Hand protection below
Hands/feet protection	▸ Wear chemical protective gloves, e.g. PVC. ▸ Wear safety footwear or safety gumboots, e.g. Rubber
Body protection	See Other protection below
Other protection	▸ Overalls. ▸ P.V.C.

Respiratory protection

Respiratory protection not normally required due to the physical form of the product.

Continued...

8.2.3. Environmental exposure controls

See section 12

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Solid

Physical state	Solid	**Relative density (Water = 1)**	Not Available
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Available
pH (as supplied)	11-12	**Decomposition temperature**	Not Available
Melting point / freezing point (°C)	>300°C	**Viscosity (cSt)**	Not Available
Initial boiling point andboiling range (°C)	Not Available	**Molecular weight (g/mol)**	Not Available
Flash point (°C)	Not Available	**Taste**	Not Available
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	Not Flammable	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Available
Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	Not Available
Vapour pressure (kPa)	Not Available	**Gas group**	Not Available
Solubility in water	Not Available	**pH as a solution (1%)**	Not Available
Vapour density (Air = 1)	Not Available	**VOC g/L**	Not Available

9.2. Other information

Not Available

SECTION 10 STABILITY AND REACTIVITY

10.1.Reactivity	See section 7.2
10.2. Chemical stability	Presence of heat source and ignition source Product is considered stable and hazardous polymerization will not occur.
10.3. Possibility ofhazardous reactions	See section 7.2
10.4. Conditions to avoid	See section 7.2
10.5. Incompatible materials	See section 7.2
10.6. Hazardous decomposition products	See section 5.3

SECTION 11 TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute Toxicity	iron Oral (rat) LD50: 98600 mg/kg[2] zinc dermal (rat) LD50: >2000 mg/kg[1] Oral (rat) LD50: >2000 mg/kg[1] copper dermal (rat) LD50: >2000 mg/kg[1] graphite Oral (rat) LD50: >2000 mg/kg[2]
Skin corrosion/irritation	The electrolyte in the battery causes severe skin burns
Serious eye damage/irritation	The electrolyte in the battery causes serious eye damage

Continued...

Respiratory or skin sensitization	No data available
Germ cell mutagenicity	No data available
Carcinogenicity	No data available
Reproductive toxicity	No data available
STOT-single exposure	No data available
STOT-repeated exposure	No data available
Aspiration hazard	No data available

Legend:	*1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances*

SECTION 12 ECOLOGICAL INFORMATION

12.1. Toxicity

LR03 (AAA), LR6 (AA), LR14 (Size C), LR20 (Size D),6LR61 (9V)	No data available for the mixture

12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
polyvinyl chloride	LOW	LOW

12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
polyvinyl chloride	LOW (LogKOW = 1.6233)

12.4. Mobility in soil

Ingredient	Mobility
polyvinyl chloride	LOW (KOC = 23.74)

12.5. Results of PBT and vPvB assessment

	P	B	T
Relevant available data	Not Applicable	Not Applicable	Not Applicable
PBT Criteria fulfilled?	Not Applicable	Not Applicable	Not Applicable

12.6. Other adverse effects

No data available

SECTION 13 DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Product / Packaging disposal	**DO NOT** allow wash water from cleaning or process equipment to enter drains. It may be necessary to collect all wash water for treatment before disposal. Recycle wherever possible or consult manufacturer for recycling options. Consult State Land Waste Authority for disposal.
Waste treatment options	Not Available
Sewage disposal options	Not Available

SECTION 14 TRANSPORT INFORMATION

Marine Pollutant	NO

Land transport (ADR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable
14.2. **UN proper shipping name**	Not Applicable

Continued...

14.3. **Transport hazard class(es)**	Class: Not Applicable Subrisk: Not Applicable
14.4. **Packing group**	Not Applicable
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	Hazard identification (Kemler): Not Applicable Classification code: Not Applicable Hazard Label: Not Applicable Special provisions: Not Applicable Limited quantity: Not Applicable Tunnel Restriction Code: Not Applicable

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Shippers of dry cell batteries should review Special Provisions A123 and A199 in the IATA Dangerous Goods Regulations.

14.1. **UN number**	Not Applicable
14.2. **UN proper shipping name**	Not Applicable
14.3. **Transport hazard class(es)**	ICAO/IATA Class: Not Applicable ICAO / IATA Subrisk: Not Applicable ERG Code: Not Applicable
14.4. **Packing group**	Not Applicable
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	Special provisions: Not Applicable Cargo Only Packing Instructions: Not Applicable Cargo Only Maximum Qty / Pack: Not Applicable Passenger and Cargo Packing Instructions: Not Applicable Passenger and Cargo Maximum Qty / Pack: Not Applicable Passenger and Cargo Limited Quantity Packing Instructions: Not Applicable Passenger and Cargo Limited Maximum Qty / Pack: Not Applicable

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable
14.2. **UN proper shipping name**	Not Applicable
14.3. **Transport hazard class(es)**	IMDG Class: Not Applicable IMDG Subrisk: Not Applicable
14.4. **Packing group**	Not Applicable
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	EMS Number: Not Applicable Special provisions: Not Applicable Limited Quantities: Not Applicable

Inland waterways transport (ADN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable
14.2. **UN proper shipping name**	Not Applicable
14.3. **Transport hazard class(es)**	Not Applicable: Not Applicable
14.4. **Packing group**	Not Applicable
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	Classification code: Not Applicable Special provisions: Not Applicable Limited quantity: Not Applicable Equipment required: Not Applicable Fire cones number: Not Applicable

14.7. Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

Continued...

SECTION 15 REGULATORY INFORMATION

15.1. Safety, health and environmental regulations / legislation specific for the substance or mixture

MANGANESE DIOXIDE(1313-13-9) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)
Europe EC Inventory
Europe European Customs Inventory of Chemical Substances
European Trade Union Confederation (ETUC) Priority List for REACH Authorisation
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
Poland Workplace Maximum Allowable Concentration (Polish)

IRON(7439-89-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Europe EC Inventory
Europe European Customs Inventory of Chemical Substances
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

ZINC(7440-66-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Europe EC Inventory
Europe European Customs Inventory of Chemical Substances
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

1,4-BUTYLENE TEREPHTHALATE HOMOPOLYMER(26062-94-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

POTASSIUM HYDROXIDE(1310-58-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU Regulation (EC) No 1223/2009 of the European Parliament and of the Council of 30 November 2009 on cosmetic products - Annex III - List of Substances which cosmetic products must not contain except subject to the restrictions laid down
Europe EC Inventory
Europe European Customs Inventory of Chemical Substances
Poland Workplace Maximum Allowable Concentration (Polish)
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

COPPER(7440-50-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Europe EC Inventory
Europe European Customs Inventory of Chemical Substances
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
Poland Workplace Maximum Allowable Concentration (Polish)

GRAPHITE(7782-42-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Europe EC Inventory
Europe European Customs Inventory of Chemical Substances
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
Poland Workplace Maximum Allowable Concentration - Dust (Polish)
Poland Workplace Maximum Allowable Concentration (Polish)

POLYVINYL CHLORIDE(9002-86-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Europe European Customs Inventory of Chemical Substances
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

POLYAMIDE(63428-84-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

ALUMINIUM(7429-90-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Europe EC Inventory
Europe European Customs Inventory of Chemical Substances
European Trade Union Confederation (ETUC) Priority List for REACH Authorisation
Poland Workplace Maximum Allowable Concentration (Polish)
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

NICKEL(7440-02-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
Europe EC Inventory
Europe European Customs Inventory of Chemical Substances
European Trade Union Confederation (ETUC) Priority List for REACH Authorisation
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
Poland Workplace Maximum Allowable Concentration (Polish)

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : EU2023/1542/EC, 2013/56/EU, 98/24/EC, - 92/85/EEC, - 94/33/EC, - 2008/98/EC, - 2010/75/EU; Commission Regulation (EU) 2015/830; Regulation (EC) No 1272/2008 as updated through ATPs.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

SECTION 16 OTHER INFORMATION

Full text Risk and Hazard codes

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure.

Continued...

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.
For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:
EN 166 Personal eye-protection
EN 340 Protective clothing
EN 374 Protective gloves against chemicals and micro-organisms
EN 13832 Footwear protecting against chemicals
EN 133 Respiratory protective devices

Definitions andabbreviations

PC－TWA: Permissible Concentration-Time Weighted Average
PC－STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

end of SDS