

## Safety Data Sheet

**Manganese Electrolytic powder**

*acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 regulations*

Document owner: **MMC Laboratory**

Effective Date:  
**02 May 2017**

Revision Date:  
**25/02/2025**

Revision No:  
**3**

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### Trade Name: Manganese Electrolytic powder

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#### 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

##### 1.1. Product identifier

**Trade name:** Manganese Electrolytic powder

**CAS Number:** 7439-96-5

**EC No:** 231-105-1

**Reach Registration No:** 01-2119449803-34

**Other means of identification:**

Manganese Metal

Mn

Mn99.9

Mn Un-stabilised Powder

##### 1.2. Recommended use and restrictions

**Recommended Use:**

**Sector of Use:**

SU8 Manufacture of bulk, large scale chemicals (including petroleum products)

SU9 Manufacture of fine chemicals

SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

SU13 Manufacture of other non-metallic mineral products, e.g. plasters, cement

SU14 Manufacture of basic metals, including alloys

SU15 Manufacture of fabricated metal products, except machinery and equipment

SU16 Manufacture of computer, electronic and optical products, electrical equipment

SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment

**Product category:**

PC7 Base metals and alloys

PC19 Intermediate

PC20 Products such as ph-regulators, flocculants, precipitants, neutralization agents

PC24 Lubricants, greases, release products

PC29 Pharmaceuticals

PC38 Welding and soldering products (with flux coatings or flux cores.), flux products

PC39 Cosmetics, personal care products

**Process category:**

PROC1 Use in closed process, no likelihood of exposure

PROC2 Use in closed, continuous process with occasional controlled exposure

PROC3 Use in closed batch process (synthesis or formulation)

PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises

PR005 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

PROC6 Calendaring operations

PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at nondedicated facilities

PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at

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dedicated facilities

PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC14 Production of preparations or articles by tableting, compression, extrusion, palletisation

PROC15 Use as laboratory reagent

PROC22 Potentially closed processing operations with minerals/metals at elevated temperature – Industrial setting

PROC23 Open processing and transfer operations with minerals/metals at elevated temperature

PROC25 Other hot work operations with metals

#### **Environmental release category:**

ERC1 Manufacture of substances

ERC2 Formulation of preparations

ERC3 Formulation in materials

ERC4 Industrial use of processing aids in processes and products, not becoming part of articles

ERC5 Industrial use resulting in inclusion into or onto a matrix

ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)

ERC6b Industrial use of reactive processing aids

#### **Article category:**

AC1 Vehicles

AC2 Machinery, mechanical appliances, electrical/electronic articles

AC3 Electrical batteries and accumulators

AC7 Metal articles

#### **Application of the substance/the mixture:**

Manganese metal

#### **Restrictions on use:**

No relevant information available.

### 1.3. Details of the supplier of the Safety Data Sheet

**Manufacturer/Supplier name:** MANGANESE METAL COMPANY

**Address:** PO Box 323, Nelspruit, South Africa, 1200

**Telephone:** (+2713) 759 4600

**Fax:** (+2713) 752 7657

**Email:** morne.ruiters@mmc.co.za

**Website:** <http://www.mmc.co.za>

#### **Further information obtainable from:**

Dept. Quality Assurance for questions about product Safety/Quality Management

REACH: Only Representative

ECP AG (EuropeanChemicalProducts AG)

First-Franz-Str.68

FL-9490 Vaduz

Liechtenstein

Contact: [reach@ecp.li](mailto:reach@ecp.li)

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#### 1.4. Emergency telephone number(s)

MANGANESE METAL COMPANY (PTY) LTD  
Emergency (013) 759 4600  
ECP AG INFORMATION DEPT. – 24 HOURS HOTLINE: +41 (52) 742 8385

## 2. HAZARDS IDENTIFICATION

#### 2.1. Classification of the substance or mixture:

**Classification according to Regulation (EC) No. 1272/2008 [EU CLP] and the UN GHS:**

The substance is not classified according to DSD regulation.

The substance is not classified according to the CLP regulation

**Classification according to directive 67/548/EEC or directive 1999/45/EC**

Not applicable, see point 3

#### 2.2. Label elements

**Labelling according to EU guidelines:**

The substance is classified and marked in accordance with EU directives/ordinance on hazardous materials.

**Safety Phrases:**

22 Do not breathe the dust

#### 2.3. Other hazards

May form combustible dust concentration in air.

## 3. COMPOSITION/ INFORMATION ON INGREDIENTS

#### 3.1 Substances(s)

Manganese is an inorganic mono-constituent substance. Its impurities are negligible and do not influence the classification.

| Ingredient       | CAS number | EC number | Content | Reach Registration No |
|------------------|------------|-----------|---------|-----------------------|
| <b>MANGANESE</b> | 7439-96-5  | 231-105-1 | >99     | 01-2119449803-34      |

#### 3.2 Mixtures: The substance is not a mixture

## 4. FIRST AID MEASURES

#### 4.1. Description of first aid measures

**After inhalation:**

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Supply fresh air; consult doctor in case of complaints. Provide oxygen treatment if affected person has difficulty breathing. Do not inhale the substance wear an appropriate NIOSH respirator.

**After skin contact:**

Brush off loose particles from skin. Wash with soap and water.

If skin irritation is experienced, consult a doctor.

Wear appropriate protective equipment and avoid skin contact. Skin protection is a must. See section 8 for detailed protective equipment.

**After eye contact:**

Remove contact lenses if worn. Rinse opened eye for several minutes under clean running water or diphoteryne or with 0.9% w/w sterile solution of sodium chloride. If symptoms persist, consult a doctor.

**After swallowing:**

Rinse out mouth and then drink plenty of water or diphoteryne. Do not induce vomiting; immediately call for medical help.

#### 4.2. Most important symptoms and effects, both acute and delayed:

Coughing, Breathing difficulty, Slight irritant effect on eyes.

Gastric or intestinal disorders when ingested. Nausea in case of ingestion.

**Self-protection of the first aider:**

Wear correct personal protective equipment

Avoid contact to Manganese powder

**Most important symptoms and effects, both acute and delayed:**

Gastric or intestinal disorders when ingested. Nausea in case of ingestion. Dust particles cause eye irritation/itchiness and lung irritation/coughing. Avoid skin contact as the substance is a skin sensitizer.

**Indication of any immediate medical attention and special treatment needed:**

No relevant information available.

## 5. FIREFIGHTING MEASURES

### 5.1. Extinguishing media

**Suitable extinguishing agents:**

Class D dry powder

Limestone powder

Dry sand.

**For safety reasons unsuitable extinguishing agents:**

Water. Foam, halogenated gas or Carbon dioxide

### 5.2. Special hazards arising from the substance or mixture

The substance does not decompose natural. However, upon combustion produces fumes of metallic oxides and oxides of carbon. May pose a dust explosion hazard if dispersed in air. Avoid ignition sources. Do not smoke.

### 5.3. Advice for firefighters

**Protective equipment:**

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Wear self-contained respiratory protective device. Wear fully protective suit. Remain on the upwind side notify or evacuate people on the downwind side.

#### 6. ACCIDENTAL RELEASE MEASURES

##### 6.1. Personal precautions, protective equipment and emergency procedures

###### 6.1.1 For Non-emergency personnel:

Ensure adequate ventilation.  
barricade the hazardous area and deny entry  
Avoid formation of dust.  
Avoid all ignition sources  
Use personal protective equipment as required, see section 8

###### 6.1.2 For emergency Responders:

Ensure adequate ventilation.  
Avoid formation of fine dust.  
Use personal protective equipment as required, see section 8

##### 6.2. Environmental precautions

Avoid release to the environment.  
Damp down dust with water spray.

##### 6.3. Methods and material for containment and cleaning up Pick up mechanically.

Send for recovery or disposal in suitable receptacles.

##### 6.4. Reference to other sections

See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

#### 7. HANDLING AND STORAGE

##### 7.1 Precautions for safe handling:

###### Protective Measures

Any deposit of dust which cannot be avoided must be regularly removed.  
Do not dry clean dust covered objects and floors. Wash thoroughly with plenty of water.  
Use only in well ventilated areas.  
Avoid handling with incompatible substances like Oxidizers, strong bases, strong acids.  
Avoid dust generating operations or must be carried out in a properly ventilated area while wearing appropriate PPE

###### Advice on general occupational hygiene

Do not eat, drink or smoke in contaminated area  
Wash hands before and after use and keep them dry  
Remove contaminated clothing and personal protective equipment before entering eating areas.

###### Information about protection against explosions and fires:

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Dust can combine with air to form an explosive mixture.

#### 7.2 Conditions for safe storage, including any incompatibilities

##### 7.2.1 Storage Requirements:

###### a) Risk management associated to physical and chemical properties

**Explosive atmosphere:** the substance is not explosive, however, store material away from possible explosive materials.

**Corrosive conditions:** The substance does not corrode metal; hence no adverse corrosive effects are expected.

**Flammability Hazard:** The substance is not flammable, however, keep away from flammable materials.

**Incompatible substances or mixtures:** Oxidizers, strong bases, strong acids

**Evaporative conditions:** Avoid storage around organic evaporative materials/substances

**Potential ignition sources:** Keep away from ignition sources

**b) How to control effects from environmental conditions:** Weather conditions, ambient pressure, varying temperatures, sunlight and vibration do not affect the integrity of the substance. However, storage environments should be protected from humid and water.

**c) How to maintain the integrity of the substance:** The substance is very stable under normal conditions of use. It does not decompose or disintegrate. Stabilisers and antioxidants are not required.

###### d) Other advice

Ventilation requirements: Ensure adequate ventilation and store at room temperature.

###### Requirements to be met by store rooms and receptacles:

Avoid storage near extreme heat, ignition sources or open flame.

Protect from humidity and water.

###### Information about storage in one common storage facility:

Store away from foodstuffs.

Store away from oxidizing agents

**Further information about storage conditions:** Keep containers tightly sealed.

#### 7.3 Specific end use(s)

No relevant information available.

### 8 EXPOSURE CONTROLS/ PERSONAL PROTECTION

#### 8.1 Control parameters

##### Components with limit values that require monitoring at the workplace:

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit. At this time, the remaining constituent has no known exposure limits.

##### 7439-96-5 manganese

|           |                                                                               |
|-----------|-------------------------------------------------------------------------------|
| PEL (USA) | Ceiling limit value: 5 mg/m <sup>3</sup><br>as Mn                             |
| REL (USA) | Short-term value: 3 mg/m <sup>3</sup><br>Long-term value: 1 mg/m <sup>3</sup> |

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|               |                                                                                          |
|---------------|------------------------------------------------------------------------------------------|
|               | fume, as Mn                                                                              |
| TLV (USA)     | Long-term value: 0.02* 0.1* mg/m <sup>3</sup><br>as Mn; *respirable **inhalable fraction |
| EL (Canada)   | Long-term value: 0.2 mg/m <sup>3</sup><br>as Mn; R                                       |
| EV (Canada)   | Long-term value: 0.2 mg/m <sup>3</sup><br>as manganese                                   |
| LMPE (Mexico) | Long-term value: 0.2 mg/m <sup>3</sup><br>como Mn                                        |

### 8.2 Exposure controls

#### Personal protective equipment:

#### General protective and hygienic measures:

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Wash hands before breaks and at the end of work.

Do not inhale dust / smoke / mist.

Avoid contact with the eyes.

Avoid close or long-term contact with the skin.

**Engineering controls:** No relevant information available.

#### Breathing equipment:

Not required under normal conditions of use.

Wear appropriate NIOSH respirator when ventilation is inadequate and occupational exposure limits are exceeded.

For spills, respiratory protection may be advisable.

Use respiratory protection when grinding or cutting material.

#### Protection of hands:

Gloves are advised for repeated or prolonged contact.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

**Eye protection:** Follow relevant national guidelines concerning the use of protective eyewear.

**Body protection:** Not required under normal conditions of use. Protection may be required for spills.

**Limitation and supervision of exposure into the environment** No special requirements.

**Risk management measures** No special requirements.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

|                       |                               |
|-----------------------|-------------------------------|
| <b>Appearance:</b>    |                               |
| <b>Form:</b>          | Solid - Powder                |
| <b>Colour:</b>        | Silver-grey and or dull brown |
| <b>Odor:</b>          | Nearly odourless              |
| <b>Odor Threshold</b> | Not determined.               |

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|                                                 |                                                  |
|-------------------------------------------------|--------------------------------------------------|
| <b>pH-value:</b>                                | Not applicable.                                  |
| <b>Melting point/Melting range:</b>             | 1245-1246 °C (2273-2275 °F)                      |
| <b>Boiling point/Boiling range:</b>             | 2061-2097 °C (3742-3807 °F)                      |
| <b>Flash point:</b>                             | Not applicable.                                  |
| <b>Flammability (solid, gaseous):</b>           | May form combustible dust concentrations in air. |
| <b>Auto-ignition temperature:</b>               | Not applicable.                                  |
| <b>Decomposition temperature:</b>               | Not determined.                                  |
| <b>Danger of explosion:</b>                     | May form combustible dust concentrations in air. |
| <b>Explosion limits</b>                         |                                                  |
| <b>Lower:</b>                                   | Not determined.                                  |
| <b>Upper:</b>                                   | Not determined.                                  |
| <b>Oxidizing properties:</b>                    | Non-oxidizing                                    |
| <b>Vapor pressure at 955 °C (1751 °F):</b>      | 1 Pa                                             |
| <b>Density:</b>                                 |                                                  |
| <b>Relative density:</b>                        | 7.2 g/cm <sup>3</sup> (60.084 lbs/gal)           |
| <b>Vapor density:</b>                           | Not applicable.                                  |
| <b>Evaporation rate:</b>                        | Not applicable.                                  |
| <b>Solubility in / Miscibility with Water:</b>  | Insoluble.                                       |
| <b>Partition coefficient (n-octanol/water):</b> | Not applicable.                                  |
| <b>Viscosity</b>                                |                                                  |
| <b>Dynamic:</b>                                 | Not applicable.                                  |
| <b>Kinematic:</b>                               | Not applicable.                                  |
| <b>Other information</b>                        | No relevant information available.               |

## 10 STABILITY AND REACTIVITY

### 10.1 Reactivity

Thoroughly check 10.2 to 10.5

**10.2 Chemical stability:** The substance is chemical stable under recommended conditions of storage, use, and temperature.

### 10.3 Possibility of hazardous reactions

Reacts with strong acids and oxidizing agents.

Reacts with strong alkali.

Risk of dust explosion if enriched with fine dust in the presence of air.

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No hazardous reaction when handled and stored according to provisions

#### 10.4 Conditions to avoid

Moisture.  
Prevent formation of dust.

#### 10.5 Incompatible materials

Oxidizers, strong bases, strong acids

#### 10.6 Hazardous decomposition products

**Under fire conditions only:** Toxic metal oxide smoke

### 11 TOXICOLOGICAL INFORMATION

#### 11.1 Information on toxicological effects

**Acute toxicity:**

**LD/LC50 values that are relevant for classification:**

**7439-96-5 manganese**

Ora LD50 9000 mg/kg (rat)

**Primary irritant effect:**

**On the skin:** Slight irritant effect on skin and mucous membranes.

**On the eye:** Slight irritant effect on eyes.

**Sensitization:** Based on available data, the classification criteria are not met.

**IARC (International Agency for Research on Cancer):**

Substance is not listed.

**NTP (National Toxicology Program):**

Substance is not listed.

**OSHA-Ca (Occupational Safety & Health Administration):**

Substance is not listed.

**Probable route(s) of exposure:**

Ingestion. Inhalation. Eye contact. Skin contact.

**Repeated dose toxicity:** Long term inhalation of product dust may be harmful.

**CMR effects (carcinogenetic, mutagenicity and toxicity for reproduction)**

**Germ cell mutagenicity:** Based on available data, the classification criteria are not met.

**Carcinogenicity:** Based on available data, the classification criteria are not met.

**Reproductive toxicity:** Based on available data, the classification criteria are not met.

**STOT-single exposure:** Based on available data, the classification criteria are not met.

**STOT-repeated exposure:** Based on available data, the classification criteria are not met.

**Aspiration hazard:** Based on available data, the classification criteria are not met.

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## 12 ECOLOGICAL INFORMATION

### 12.1 Toxicity

#### Acute (short term) toxicity

- a) **Fish:** OECD guidelines 203, EU method C1 and GLP. LD50 (96H) for fresh water fish: > 3.6 mg/L.
- b) **Crustacean:** OECD guideline 202, EU method C2 and GLP. EC50/LC50 (48h) for fresh water invertebrates: >1.6 mg/L
- c) **Algae/aquatic plants:** OECD 201, EU method C3 and GLP. EC50/LC50 (72h): 4.5 mg/L. EC10/LC10 (72h): 3.4 mg/L. NOEC (72h): 2.5 mg/L
- d) **ASRI (Activated sludge respiratory inhibition):** OECD guideline 209, EU method C11 and GLP. EC50: >1000 mg/L; NOEC (>3h): >1000 mg/L
- e) **Chronic (long-term) toxicity:**
  - Crustacean- Daphnia reproductive test:** OECD guideline 211 and GLP. NOEC (8d): 1.7 mg/L.

**12.2 Persistence and degradability:** The substance does not have the potential for persistence.

**12.3 Bio accumulative potential:** The substance does not have the potential to bioaccumulate.

**12.4 Mobility in soil:** the substance does not have the potential to move into ground water.

**12.5 Results of PBT and vPvB assessment:** No assessment was carried out as the substance is a naturally occurring ore which is except from REACH registration. However, based on its properties, it is predicted not to be PBT or vPvB.

**12.6 Endocrine disrupting properties** not considered an endocrine disruptor based on available literature.

### 12.7 Other adverse effects

No relevant information available.

## 13 DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods: Waste disposal with local and national laws covering waste and dangerous waste.

#### Recommendation:

Contact waste processors for recycling information. The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and non-hazardous wastes.

### 13.1 Uncleaned packaging

**Recommendation:** Disposal must be made according to official regulations.

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### 14 TRANSPORT INFORMATION

|                                                                         |                 |
|-------------------------------------------------------------------------|-----------------|
| UN-Number<br>DOT, ADR, IMDG, IATA                                       | Not regulated.  |
| UN proper shipping name<br>DOT, ADR, IMDG, IATA                         | Not regulated.  |
| Transport hazard class(es)<br>DOT, ADR, IMDG, IATA<br>Class             | Not regulated.  |
| Packing group<br>DOT, ADR, IMDG, IATA                                   | Not regulated.  |
| Environmental hazards<br>Marine pollutant:                              | No              |
| Special precautions for user                                            | Not applicable. |
| Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |

### 15 REGULATORY INFORMATION

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

United States (USA)

SARA

#### Section 302 (extremely hazardous substances):

Substance is not listed

#### Section 355 (extremely hazardous substances):

Substance is not listed.

#### Section 313 (Specific toxic chemical listings):

Substance is listed.

#### TSCA (Toxic Substances Control Act)

Substance is listed.

#### Proposition 65 (California)

##### Chemicals known to cause cancer:

Substance is not listed.

##### Chemicals known to cause reproductive toxicity for females:

Substance is not listed.

##### Chemicals known to cause reproductive toxicity for males:

Substance is not listed.

##### Chemicals known to cause developmental toxicity:

Substance is not listed.

**Carcinogenic categories**

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#### EPA (Environmental Protection Agency):

#### IARC (International Agency for Research on Cancer):

Substance is not listed.

#### NIOSH-Ca (National Institute for Occupational Safety and Health):

Substance is not listed.

#### Canadian Domestic Substances List (DSL):

Substance is listed.

## 16 OTHER INFORMATION

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 valid contractual relationship.

**Date of preparation / last revision** 02/05/2017 / - 25-02-2025

**Revision on section:** 1,2,3,4,5, & 16

#### Abbreviations and acronyms:

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

CAS: Chemical Abstracts Service (division of the American Chemical Society) LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health

LDLo: Lowest Lethal Dose Observed

#### Sources

Website, European Chemicals Agency ([echa.europa.eu](http://echa.europa.eu))

Website, US EPA Substance Registry Services ([ofmpub.epa.gov/sorinternet/registry/substreg/home/overview/home.do](http://ofmpub.epa.gov/sorinternet/registry/substreg/home/overview/home.do))

Website, Chemical Abstracts Registry, American Chemical Society ([www.cas.org](http://www.cas.org)) Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6

Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaassen, Curtis D., ed., ISBN: 978-0-07-176923-5.

Safety Data Sheets, Individual Manufacturers

SDS PREPARED BY:

MANGANESE METAL COMPANY

P O BOX 323

MBOMBELA

1200

TEL NUMBER (013) 7594600

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WEBSITE: [WWW.MMC.CO.ZA](http://WWW.MMC.CO.ZA)

#### 17 AMENDMENT HISTORY

The following information documents the last changes

| Date             | Revised by                   | Changes                                                                                              |
|------------------|------------------------------|------------------------------------------------------------------------------------------------------|
| 27 August 2017   | S Kampers<br>Parsley Studios | Changed MMC logo and the document format, no changes to the actual content of the document was made. |
| 14 April 2021    | Twice Mnisi                  | Incorporated MARA's additional Knowledge in section 1, 2, 3, 4, 6, 7, 12, 13, 14, and 16             |
| 26 February 2025 | Twice Mnisi                  | Edited section 1, 2, 3, 4, 5 and 16                                                                  |