

Safety Data Sheet

SECTION I: Product and Company Identification

1.1 Product identifiers

Product name: P54 Enhancer Solution

Product Number: C4613

Brand: MEDNA

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

Identified uses: For research use. Laboratory chemicals, Synthesis of substances.

1.3 Details of the supplier of the safety data sheet

Company : MEDNA Scientific, Inc.

9160 Sterling Street, Suite 110

Irving, TX 75063

Office: 469-250-4424

Emergency phone number: 469-250-4424

SECTION II: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 4), H227

Acute toxicity, Inhalation (Category 4), H332

Acute toxicity, Dermal (Category 4), H312

Eye irritation (Category 2A), H319

Reproductive toxicity (Category 1B), H360

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H227 Combustible liquid.

H312 + H332 Harmful in contact with skin or if inhaled.

H319 Causes serious eye irritation.

H360 May damage fertility or the unborn child.

Precautionary statement(s)

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P302 + P352 + P312 IF ON SKIN: Wash with plenty of water. Call a POISON CENTER/doctor if you feel unwell.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

Rapidly absorbed through skin.

SECTION III: Composition/information on ingredients

Substances

Synonyms : [REDACTED]

Formula : [REDACTED]

Molecular weight : [REDACTED]

CAS-No. : [REDACTED]

EC-No. : [REDACTED]

Index-No. : [REDACTED]

| Component | Classification | Concentration |
|-----------------------|--|---------------|
| N,N-Dimethylacetamide | Flam. Liq. 4; Acute Tox. 3; Acute Tox. 4; Eye Irrit. 2A; Repr. 1B; H227, H331, H312, H319, H360 | [REDACTED] |

SECTION IV: First aid measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Important Symptoms and Effects, Both Acute and Delayed:

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available.

SECTION V: Firefighting measures**5.1 Extinguishing media****Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media

Do NOT use water jet.

5.2 Special hazards arising from the substance or mixture

Carbon oxides, Nitrogen oxides (NO_x)

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

SECTION VI: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for

disposal.

SECTION VII: Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build-up of electrostatic charge.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Store under inert gas. Hygroscopic.

Storage class (TRGS 510): 6.1D: Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects.

SECTION VIII: Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters

[REDACTED]

TWA: 10 ppm According to USA. ACGIH Threshold Limit Values (TLV)

Remarks: Renal effects, Liver damage, Embryo/fetal damage, Reproductive effects, Teratogenic effects, 2018 Adoption Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans. Danger of cutaneous absorption.

TWA: 10 ppm, 35 mg/m³, According to NIOSH Recommended Exposure Limits, Potential for dermal absorption.

TWA: 10 ppm, 35 mg/m³, According to USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants, Skin designation. The value in mg/m³ is approximate.

PEL: 10 ppm, 35 mg/m³, California permissible exposure limits for chemical contaminants (Title 8, Article 107), Skin

Biological occupational exposure limits

| Component | CAS-No. | Parameters | Value | Biological Specimen | Basis |
|------------|------------|----------------------------------|--------------------|---------------------|---|
| [REDACTED] | [REDACTED] | [REDACTED] | 30 mg/g Creatinine | Urine | ACGIH - Biological Exposure Indices (BEI) |
| | Remarks | End of shift at end of work week | | | |

Derived No Effect Level (DNEL)

| Application Area | Exposure routes | Health effect | Value |
|------------------|-----------------|----------------------------|----------------------|
| Workers | Skin contact | Long-term systemic effects | 13.6mg/kg BW/d |
| Workers | Inhalation | Long-term systemic effects | 36 mg/m ³ |

Predicted No Effect Calculation (PNEC)

| Compartment | Value |
|------------------------------|-------------|
| Soil | 0.15 mg/kg |
| Marine water | 0.0966 mg/L |
| Fresh water | 0.5 mg/L |
| Sewage treatment plan | 2.27 mg/kg |
| Aquatic intermittent release | 5 mg/L |

8.2 Exposure controls
Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment
Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Environmental exposure controls

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Other information

Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. Handle according to established industrial hygiene and safety practices.

SECTION IX: Physical and chemical properties

9.1 Basic physical and chemical properties

- a) Appearance Form: Colorless
- b) Odor: Ammonia odor
- c) Odor threshold: No information available
- d) pH: 4 at 200 g/l at 20 °C (68 °F)
- e) Melting point/freezing point: Melting point/range: -20 °C (-4 °F)
- f) Initial boiling point and boiling range 164.5 - 166 °C (328.1 - 331 °F)
- g) Flash point 64 °C (147 °F) - closed cup
- h) Evaporation rate No data available
- i) Flammability (solid, gas) No data available
- j) Upper/lower flammability or explosive limits
Upper explosion limit: 11.5 %(V)
Lower explosion limit: 1.8 %(V)
- k) Vapour pressure 2 hPa at 21.7 °C (71.1 °F)
11.8 hPa at 50 °C(122 °F)
- l) Vapour density 3.01 - (Air = 1.0)
- m) Relative density 0.937 g/mL at 25 °C (77 °F)
- n) Water solubility 1,000 g/l at 20 °C (68 °F) - completely miscible
- o) Partition coefficient: n-octanol/water log Pow: -0.77
- p) Auto-ignition temperature No data available
- q) Decomposition temperature No data available
- r) Viscosity No data available
- s) Explosive properties No data available
- t) Oxidizing properties No data available

9.2 Other safety information

Dissociation constant -0.19 at 25 °C (77 °F)

Relative vapour density 3.01 - (Air = 1.0)

SECTION X: Stability and reactivity

10.1 Reactivity

Stable under recommended transport or storage conditions.

10.2 Chemical stability

Hygroscopic, Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Heat, flames, sparks.

10.5 Incompatible materials

Strong oxidizers.

10.6 Hazardous decomposition products

Carbon monoxide, carbon dioxide, nitrogen oxides. Carbon oxides, Nitrogen oxides (NO_x), Sulphur oxides.

SECTION XI: Toxicological information**Acute toxicity:**

LC50 Inhalation - Rat - 4 h - 2.21 mg/l

Remarks: Nutritional and Gross Metabolic: Weight loss or decreased weight gain. (RTECS)

Dermal: No data available

No data available

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation

(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation

(OECD Test Guideline 405)

Respiratory or skin sensitisation

Local lymph node assay (LLNA) - Guinea pig

Result: negative

(OECD Test Guideline 429)

Germ cell mutagenicity

Ames test

Salmonella typhimurium

Result: negative

Mutagenicity (mammal cell test): chromosome aberration.

Human lymphocytes

Result: negative

In vitro mammalian cell gene mutation test

Chinese hamster lung cells

Result: negative

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity

May damage the unborn child

Specific target organ toxicity - single exposure

No data available

Acute oral toxicity - Irritations of mucous membranes in the mouth, pharynx, oesophagus

and gastrointestinal tract.

Acute inhalation toxicity - Possible damages:, mucosal irritations

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 2 yr - No observed adverse effect level - 100 - 300 mg/kg - Lowest observed adverse effect level - 300 - 1,000 mg/kg

RTECS: AB7700000

impaired judgment, emotional instability, toxic psychosis, nystagmus, dysarthria, Ataxia.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption of toxic quantities:

Nausea, Vomiting, inebriation, muscle twitching, hallucinations, Diarrhoea, lack of appetite, narcosis, Coma

Damage to: Liver, Kidney, Central nervous system

Other dangerous properties cannot be excluded.

This substance should be handled with particular care.

Liver - Irregularities - Based on Human Evidence

SECTION XII: Ecological information**12.1 Toxicity**

Toxicity to fish

Static test LC50 - *Leuciscus idus* (Golden orfe) - > 500 mg/l - 96 h
(DIN 38412 T15)

Toxicity to daphnia and other aquatic invertebrates

Static test EC50 - *Daphnia magna* (Water flea) - > 500 mg/l - 48 h
(Regulation (EC) No. 440/2008, Annex, C.2)

Toxicity to algae

Static test ErC50 - *Desmodesmus subspicatus* (green algae) - > 500 mg/l - 72 h
(DIN 38412)

Toxicity to bacteria

Static test EC10 - activated sludge - > 1,995 mg/l - 30 min
(OECD Test Guideline 209)

12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 28 d

Result: 70 % - Readily biodegradable.

(OECD Test Guideline 301C)

Remarks: The 10 day time window criterion is not fulfilled.

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

SECTION XIII: Disposal considerations**13.1 Waste treatment methods****Product**

Contact a licensed professional waste disposal service to dispose of this material. Offer surplus and non-recyclable solutions to a licensed disposal company. This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

SECTION XIV: Transport information**DOT (US)**

NA-Number: 1993 Class: NONE Packing group: III

Proper shipping name: Combustible liquid, n.o.s. (N,N-Dimethylacetamide)

Reportable Quantity (RQ):

Poison Inhalation Hazard: No

IMDG

Not dangerous goods.

IATA

Not dangerous goods.

SECTION XV: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

SARA302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA311/312: Fire Hazard, Acute Health Hazard, Chronic Health Hazard
Massachusetts, Pennsylvania, New Jersey Right To Know Components

California Prop. 65 Components

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. [REDACTED]

SECTION XVI: Other information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product regarding appropriate safety precautions. It does not represent any guarantee of the properties of the product. MEDNA Scientific shall not be held liable for any damage resulting from handling or from contact with the above product.