SECTION-1: Identification of the substance / mixture and the company / undertaking

Catalogue Number	CS-EK-02208
Product Name	Palmitic acid
CAS No.	57-10-3
Category	API
Synonyms	Not available.
Brand	Clearsynth Labs Ltd.
Identified uses	Laboratory Chemicals
Uses advised against	Not available
Company	Clearsynth Labs Ltd. Mumbai, India
Emergency Phone #	+91-22-245045900
REACH No.	Not available

SECTION 2: Hazards identification

Disclaimer: This is sample MSDS. Please email **sales@clearsynth.com** for more details.

2.1 Classification of the substance or mixture-Regulation (EC) No 1272/2008:

Skin irritation (Category 2)
Serious eye damage/eye irritation (Category 2)

2.2 Label Elements

Signal Word: Warning



Hazard Statement(s)

Code	Statement
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	Not available

Precautionary Statement(s)

Code	Statement
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash hands thoroughly after handling.
P264+P265	Not available
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352	IF ON SKIN: Wash with plenty of water and soap.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if presen
P319	Get medical help if you feel unwell.
P321	Specific treatment (see … on this label).
P332+P317	If skin irritation occurs: Get medical help.
P337+P317	If eye irritation persists: Get medical help.
P362+P364	Take off contaminated clothing and wash it before reuse.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulatio

SECTION 3: Composition / information on ingredients

3.1 Substance

Component : Palmitic acid
CAS Number : 57-10-3
Molecular Formula : C■■H■■O■
Molecular Weight : 256.42
Parent Chemical : -
Synonyms : Not available.
Concentration : Not available

SECTION 4: First aid measures

SECTION 4: First-aid measures

4.1 Description of first aid measures

- General advice: Seek medical attention if symptoms persist or if there is concern. Show this SDS to medical personnel.
- Inhalation: Move person to fresh air. If breathing is difficult, seek medical attention.
- Skin contact: Wash with soap and water. Remove contaminated clothing and wash before reuse. Seek medical attention if irritation develops.
- Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention if irritation persists.
- Ingestion: Rinse mouth. Do not induce vomiting unless directed by medical personnel. Seek medical attention if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed
- Not available.

4.3 Indication of any immediate medical attention and special treatment needed
- Treat symptomatically. No data available.

SECTION 5: Firefighting measures

SECTION 5: Fire-fighting measures

5.1 Extinguishing media
- Suitable extinguishing media: Water spray, alcohol-resistant foam, dry chemical, carbon dioxide.
- Unsuitable extinguishing media: Not available.

5.2 Special hazards arising from the substance or mixture
- Hazardous combustion products: Not available.
- Specific hazards: Dust may form combustible mixtures with air under certain conditions. No data available.

5.3 Advice for firefighters
- Wear self-contained breathing apparatus (SCBA) and full protective gear.
- Use water spray to cool unopened containers.
- Avoid inhalation of combustion products.

SECTION 6: Accidental release measures

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
- Avoid breathing dust/fume. Avoid contact with eyes and skin.
- Use appropriate personal protective equipment (see Section 8).
- Ensure adequate ventilation.

6.2 Environmental precautions
- Avoid release to the environment. Prevent entry into drains, surface water, or soil.

6.3 Methods and material for containment and cleaning up
- For small spills: Sweep up or collect using methods that minimize dust generation. Place in suitable, closed container for disposal.
- For large spills: Contain spill. Collect mechanically. Avoid creating airborne dust.

6.4 Reference to other sections
- See Section 8 for exposure controls/personal protection and Section 13 for disposal considerations.

SECTION-7: Handling and storage

SECTION 7: Handling and storage

7.1 Precautions for safe handling
- Handle in accordance with good industrial hygiene and safety practice.
- Avoid formation of dust and aerosols.
- Avoid contact with eyes, skin, and clothing.
- Provide adequate ventilation.

7.2 Conditions for safe storage, including any incompatibilities
- Store in tightly closed container in a cool, dry, well-ventilated place.
- Protect from moisture and contamination.
- Incompatible materials: Not available.

7.3 Specific end use(s)
- API / laboratory and industrial use. No further information available.

SECTION 8: Exposure controls / personal protection

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
- Occupational exposure limits: Not available.
- Biological limit values: Not available.

8.2 Exposure controls
- Engineering controls: Use local exhaust ventilation or general ventilation to minimize airborne concentrations.
- Personal protective equipment (PPE):
- Eye/face protection: Safety glasses with side shields or chemical splash goggles.
- Skin protection: Protective gloves. Wear appropriate protective clothing.
- Respiratory protection: If dust is generated and ventilation is inadequate, use an appropriate particulate respirator.
- Hygiene measures: Wash hands after handling. Do not eat, drink, or smoke when using this product.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Test	Result
Appearance	White solid
IR spectrum	Confirms
pH	No data available
Solubility	In DMSO

Property	Value
a) Physical State	No data available
b) Color	No data available
c) Odor	No data available
d) pH	2.7
e) Vapour Pressure	No data available
f) Viscosity	No data available
g) Initial Boiling Point and boiling range	No data available
h) Melting Point / Freezing Point	No data available
i) Auto Ignition Temperature	No data available
j) Flash Point	No data available
k) Explosion Limit, Lower	No data available
l) Explosion Limit, Upper	No data available
m) Decomposition Temperature	No data available
n) Loss on Drying	No data available
o) Relative Density	No data available
p) Solubility (in DMSO)	No data available
q) Oxidizing Properties	No data available

SECTION 10: Stability and reactivity

SECTION 10: Stability and reactivity

10.1 Reactivity
- No data available.

10.2 Chemical stability
- Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
- No data available.

10.4 Conditions to avoid
- Excessive heat. Dust generation. No data available.

10.5 Incompatible materials
- Not available.

10.6 Hazardous decomposition products

- Not available.

SECTION 11: Toxicological information

11.1 Information on toxicological effects
- Acute toxicity: IDENTIFICATION AND USE: Palmitic acid is a solid. It is one of the most common fatty acids, which occurs in natural fats and oils. It is used as soap and cosmetics agent. It is also used in manufacture of metallic palmitates, lube oils, waterproofing, and food-grade additives. HUMAN STUDIES: Palmitic acid was a mild irritant when applied to human skin (75 mg total over 3 days). The excess of saturated free fatty acids, such as palmitic acid, that induces lipotoxicity in hepatocytes, has been implicated in the development of non-alcoholic fatty liver disease also associated with insulin resistance. Growing evidence suggests that the elevation of free fatty acids, including palmitic acid, are associated with inflammation and oxidative stress, which may be involved in endothelial dysfunction, characterized by the reduced bioavailability of nitric oxide (NO) synthesized from endothelial NO synthase (eNOS). Palmitic acid was found to induce significantly elevated levels of biologically active neutrophil chemoattractant, IL-8, from steatotic hepatocytes. In human Chang liver cells palmitic acid induced apoptosis accompanied by autophagy through mitochondrial dysfunction and endoplasmic reticulum stress, which are triggered by oxidative stress. Palmitic acid also stimulated pro-inflammatory responses in human immune cells via Toll-like receptor 4 (TLR4). In large prospective cohort, circulating palmitic acid was associated with higher diabetes risk. However, palmitic acid also plays an important role in early human development. At birth, the term infant is 13-15% body fat, with 45-50% of that as palmitic acid, much of which is derived from endogenous synthesis in the fetus. Palmitic acid is required for biosynthesis of lung lecithin, which is related to fetal maturation. Radiochromatogram showed high incorporation of palmitate into lecithin by fetal lung. Palmitic acid at concentrations up to 100 mg/dL showed little or no toxicity to sperm cells. Palmitic acid markedly suppressed the granulosa cell survival in a time- and dose-dependent manner. ANIMAL STUDIES: Administration of product formulations containing 2.2-74% palmitic acid produced minimal erythema and no edema 2-24 hr after application to the skin of albino rabbits. Administration of commercial grade palmitic acid to the eyes of 6 albino rabbits produced no irritation. Mild to moderate ocular irritation was produced in rabbits by product formulations containing 19.4% palmitic acid. One of these formulations had been diluted to 75% with corn oil. Cosmetic product formulations containing 2.2 and 4.4% palmitic acid produced no ocular irritation in 6 albino rabbits. Administration of up to 10 mL/kg of commercial-grade palmitic acid to rats caused no deaths and no significant gross lesions at necropsy. Transient clinical signs, such as unkempt fur, diarrhea, and slight CNS depression were seen at 4.64 and 10 mL/kg. Rats fed diets containing 4.6 g/kg/day palmitic acid for 6 weeks developed hyperlipemia. Rats that ingested a diet containing 6% palmitic acid for 16 weeks developed atherosclerotic lesions. Palmitic acid was administered to 16 mice at a dose of 1.0 mg 3 times per week for a total of 10 injections (total dose, 10 mg palmitic acid/mL tricaprylin). Eight mice were alive after 12 months, and 6 were alive after 18 months. One subcutaneous sarcoma was found after 19 months, 2 pulmonary neoplasms were found after 19 and 22 months, and 1 breast carcinoma was found after 22 months. Brief palmitic acid exposure of murine blastocysts resulted in altered embryonic metabolism and growth, with lasting adverse effects on offspring. Palmitic acid inhibited the cell growth in rat hepatocytes. /HUMAN EXPOSURE STUDIES/ The phototoxicity of a shave cream formulation containing 2.2% palmitic acid was tested in 101 human subjects using single 24-hr closed and open patches. Sites were UV-irradiated (wavelength and dosage unspecified) after patch removal. Irritation was observed at 1 site tested with a closed patch.
- Skin corrosion/irritation: No data available.
- Serious eye damage/eye irritation: IDENTIFICATION AND USE: Palmitic acid is a solid. It is one of the most common fatty acids, which occurs in natural fats and oils. It is used as soap and cosmetics agent. It is also used in manufacture of metallic palmitates, lube oils, waterproofing, and food-grade additives. HUMAN STUDIES: Palmitic acid was a mild irritant when applied to human skin (75 mg total over 3 days). The excess of saturated free fatty acids, such as palmitic acid, that induces lipotoxicity in hepatocytes, has been implicated in the development of

non-alcoholic fatty liver disease also associated with insulin resistance. Growing evidence suggests that the elevation of free fatty acids, including palmitic acid, are associated with inflammation and oxidative stress, which may be involved in endothelial dysfunction, characterized by the reduced bioavailability of nitric oxide (NO) synthesized from endothelial NO synthase (eNOS). Palmitic acid was found to induce significantly elevated levels of biologically active neutrophil chemoattractant, IL-8, from steatotic hepatocytes. In human Chang liver cells palmitic acid induced apoptosis accompanied by autophagy through mitochondrial dysfunction and endoplasmic reticulum stress, which are triggered by oxidative stress. Palmitic acid also stimulated pro-inflammatory responses in human immune cells via Toll-like receptor 4 (TLR4). In large prospective cohort, circulating palmitic acid was associated with higher diabetes risk. However, palmitic acid also plays an important role in early human development. At birth, the term infant is 13-15% body fat, with 45-50% of that as palmitic acid, much of which is derived from endogenous synthesis in the fetus. Palmitic acid is required for biosynthesis of lung lecithin, which is related to fetal maturation. Radiochromatogram showed high incorporation of palmitate into lecithin by fetal lung. Palmitic acid at concentrations up to 100 mg/dL showed little or no toxicity to sperm cells. Palmitic acid markedly suppressed the granulosa cell survival in a time- and dose-dependent manner. ANIMAL STUDIES: Administration of product formulations containing 2.2-74% palmitic acid produced minimal erythema and no edema 2-24 hr after application to the skin of albino rabbits. Administration of commercial grade palmitic acid to the eyes of 6 albino rabbits produced no irritation. Mild to moderate ocular irritation was produced in rabbits by product formulations containing 19.4% palmitic acid. One of these formulations had been diluted to 75% with corn oil. Cosmetic product formulations containing 2.2 and 4.4% palmitic acid produced no ocular irritation in 6 albino rabbits. Administration of up to 10 mL/kg of commercial-grade palmitic acid to rats caused no deaths and no significant gross lesions at necropsy. Transient clinical signs, such as unkempt fur, diarrhea, and slight CNS depression were seen at 4.64 and 10 mL/kg. Rats fed diets containing 4.6 g/kg/day palmitic acid for 6 weeks developed hyperlipemia. Rats that ingested a diet containing 6% palmitic acid for 16 weeks developed atherosclerotic lesions. Palmitic acid was administered to 16 mice at a dose of 1.0 mg 3 times per week for a total of 10 injections (total dose, 10 mg palmitic acid/mL tricaprylin). Eight mice were alive after 12 months, and 6 were alive after 18 months. One subcutaneous sarcoma was found after 19 months, 2 pulmonary neoplasms were found after 19 and 22 months, and 1 breast carcinoma was found after 22 months. Brief palmitic acid exposure of murine blastocysts resulted in altered embryonic metabolism and growth, with lasting adverse effects on offspring. Palmitic acid inhibited the cell growth in rat hepatocytes. /LABORATORY ANIMALS: Acute Exposure/ Administration of commercial grade palmitic acid to the eyes of 6 albino rabbits produced no irritation. Mild to moderate ocular irritation was produced in rabbits by product formulations containing 19.4% palmitic acid. One of these formulations had been diluted to 75% with corn oil. Cosmetic product formulations containing 2.2 and 4.4% palmitic acid produced no ocular irritation in 6 albino rabbits.

- Respiratory or skin sensitization: /HUMAN EXPOSURE STUDIES/ In a prophetic patch test, a shave cream formulation containing 2.2% Palmitic Acid was tested for irritation and sensitization of the skin of 101 human subjects. Two 24-hr closed and open patches are usually applied to the skin 10-14 days apart in the standard Schwartz-Peck procedure. There were 3 reactions of mild to intense erythema to the closed challenge patch and the formulation was considered "nonirritating and nonsensitizing." /HUMAN EXPOSURE STUDIES/ A modified Shelanski RIPT in 52 human subjects involved 10 alternate-day 24-hr induction patches, a 2-to 3-week nontreatment phase and a single 48-hr challenge patch. Closed and open patches with the same shave cream formulation containing 2.2% palmitic acid were applied. No irritation or sensitization was observed.
- 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.

Likely routes of exposure
- No data available.

Symptoms related to the physical, chemical and toxicological characteristics
- IDENTIFICATION AND USE: Palmitic acid is a solid. It is one of the most common fatty acids, which occurs in natural fats and oils. It is used as soap and cosmetics agent. It is also used in manufacture of metallic palmitates, lube oils, waterproofing, and food-grade additives. HUMAN STUDIES: Palmitic acid was a mild irritant when applied to human skin (75 mg total over 3 days). The excess of saturated free fatty acids, such as palmitic acid, that induces lipotoxicity in hepatocytes, has been implicated in the development of non-alcoholic fatty liver disease also associated with insulin resistance. Growing evidence suggests that the elevation of free fatty acids, including palmitic acid, are associated with inflammation and oxidative stress, which may be involved in endothelial dysfunction, characterized by the reduced bioavailability of nitric oxide (NO) synthesized from endothelial NO synthase (eNOS). Palmitic acid was found to induce significantly elevated levels of biologically active neutrophil chemoattractant, IL-8, from steatotic hepatocytes. In human Chang liver cells palmitic acid induced apoptosis accompanied by autophagy through mitochondrial dysfunction and endoplasmic reticulum stress, which are triggered by oxidative stress. Palmitic acid also stimulated pro-inflammatory responses in human immune cells via Toll-like receptor 4 (TLR4). In large prospective cohort, circulating palmitic acid was associated with higher diabetes risk. However, palmitic acid also plays an important role in early human development. At birth, the term infant is 13-15% body fat, with 45-50% of that as palmitic acid, much of which is derived from endogenous synthesis in the fetus. Palmitic acid is required for biosynthesis of lung lecithin, which is related to fetal maturation. Radiochromatogram showed high incorporation of palmitate into lecithin by fetal lung. Palmitic acid at concentrations up to 100 mg/dL showed little or no toxicity to sperm cells. Palmitic acid markedly suppressed the granulosa cell survival in a time- and dose-dependent manner. ANIMAL STUDIES: Administration of product formulations containing 2.2-74% palmitic acid produced minimal erythema and no edema 2-24 hr after application to the skin of albino rabbits. Administration of commercial grade palmitic acid to the eyes of 6 albino rabbits produced no irritation. Mild to moderate ocular irritation was produced in rabbits by product formulations containing 19.4% palmitic acid. One of these formulations had been diluted to 75% with corn oil. Cosmetic product formulations containing 2.2 and 4.4% palmitic acid produced no ocular irritation in 6 albino rabbits. Administration of up to 10 mL/kg of commercial-grade palmitic acid to rats caused no deaths and no significant gross lesions at necropsy. Transient clinical signs, such as unkempt fur, diarrhea, and slight CNS depression were seen at 4.64 and 10 mL/kg. Rats fed diets containing 4.6 g/kg/day palmitic acid for 6 weeks developed hyperlipemia. Rats that ingested a diet containing 6% palmitic acid for 16 weeks developed atherosclerotic lesions. Palmitic acid was administered to 16 mice at a dose of 1.0 mg 3 times per week for a total of 10 injections (total dose, 10 mg palmitic acid/mL tricaprylin). Eight mice were alive after 12 months, and 6 were alive after 18 months. One subcutaneous sarcoma was found after 19 months, 2 pulmonary neoplasms were found after 19 and 22 months, and 1 breast carcinoma was found after 22 months. Brief palmitic acid exposure of murine blastocysts resulted in altered embryonic metabolism and growth, with lasting adverse effects on offspring. Palmitic acid inhibited the cell growth in rat hepatocytes.

SECTION 12: Ecological information

SECTION 12: Ecological information

12.1 Toxicity
- Not available.

12.2 Persistence and degradability
- Not available.

12.3 Bioaccumulative potential
- Not available.

12.4 Mobility in soil
- Not available.

12.5 Results of PBT and vPvB assessment
- Not available.

12.6 Endocrine disrupting properties
- Not available.

12.7 Other adverse effects
- Not available.

SECTION 13: Disposal considerations

SECTION 13: Disposal considerations

13.1 Waste treatment methods
- Dispose of contents/container in accordance with local/regional/national/international regulations.
- Do not discharge to drains or the environment.
- Recommended disposal method: Not available.

SECTION 14: Transport information

SECTION 14: Transport information

- UN number: Not available.
- UN proper shipping name: Not available.
- Transport hazard class(es): Not available.
- Packing group: Not available.
- Environmental hazards: Not available.
- Special precautions for user: Not available.
- Transport in bulk according to IMO instruments: Not available.

SECTION 15: Regulatory information

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
- Not available.

15.2 Chemical safety assessment
- Not available.

SECTION 16: Other information

SECTION 16: Other information

- Product name: Palmitic acid

- CAS No.: 57-10-3
- Catalog No.: CS-EK-02208
- Supplier: Clearsynth Labs Ltd., Mumbai, India
- Emergency phone: +91-22-245045900

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