
I. Identification

Product name: Jatropha seed oil**Taxonomy****Current name:** Jatropha curcas**Authority:** L.**Family:** Euphorbiaceae**Synonym(s):** Curcas purgans Medic.; Castiglionia lobata Ruiz and Pav.; Curcas adansonii Endl. ex Heynh.; Curcas curcas (L.) Britton and Millsp.; Curcas indica A. Rich.; Curcas purgans Medic.; Jatropha acerifolia Salisb.; Jatropha edulis Cerv.; Ricinus americanus Miller.; Ricinus jarak Thunb.**Common local names:** Afrikaans: purgeerboontjie; Arabic: dand barri, habel meluk; Bengali : bagbherenda, erandagachh.; Chinese : yu-lu-tzu.; Creole : fey medsen, gran medsinye.; Dutch : purgeernoot.; English : Barbados nut, castor oil, Chinese castor oil, curcas, fig nut, physic nut, pig nut, purging nut, wild oil nut.; Filipino : tubang-bakod.; French : feuilles médecin, grand médecinier, médecinier, médecinier béni, médecinier carthartique, pignon d'Inde, pourghere.; Hindi: bagbherenda, jangliarandi, safedarand.; Indonesian : jarak budge Italian : fagiola d'India.; Luganda : kiryowa.; Mandarin : yu-lu-tzu.; Nepali : kadam.; Portuguese : mundubi-assu, purgueira.; Sanskrit: kananaeranda, kananaerend, parvataranda.; Spanish: pinol, pinon, piñón, piñón botija, piñón criollo, piñón lechero, piñón purgante, piñón vóci.; Swahili : mbono.; Tamil : kadalamanakku, kattamanakku.; Thai: sabudam.**Trade name:** Jatropha oil, Fig nut oil, Physic nut oil, Hell oil

II. Ingredients

Product is supplied as a whole seed / kernel oil. It is a non-food grade material for industrial use only.

Composition:

Free fatty acid composition:

Myristic acid (14:0)	0-0.1 %
Palmitic acid (16:0)	14.1-15.3 %
Stearic acid (18:0)	3.7-9.8 %
Arachidic acid (20:0)	0-0.3 %
Behenic acid (22:0)	0-0.2 %
Palmitoleic acid (16:1)	0-1.3 %
Oleic acid (18:1)	34.3-45.8 %
Linoleic acid (18:2)	29.0-44.2 %
Linoleic acid (18:3)	0-0.3 %

Chemical parameters:

Monoglycerides (% m/m) :	Not detected
Diglycerides (% m/m) :	2.7
Triglycerides (% m/m) :	97.3
Water (% m/m) :	0.07
Phosphorus (mg kg ⁻¹) :	290
Calcium (mg kg ⁻¹) :	56
Magnesium (mg kg ⁻¹) :	103
Iron (mg kg ⁻¹) :	2.4

Toxic ingredients:

1. Phorbol esters:

concentration (2-4 mg/g oil), co-carcinogenic to animals, mutagenic to mammalian somatic cells, bacteria and yeast. Produce cathartic and degenerative changes in gastrointestinal tract, liver, kidney, brain. Ingestion causes bloody diarrhoea, collapse, fall of blood pressure, tachycardia, coma and death (in rats). Repeated application on skin leads to hyperplasia (in mice).

2. Jatropherol:

is a phorbol type diterpenes (0.12-0.14 mg/g oil) found highly toxic to silk worm larvae after ingestion with LC50 values 0.58, 0.22, 0.157 mg/ml at 48, 72, 120 h respectively. The oral toxicity of jatropherol to mice was found to be 82.198 mg/kg body weight.

CAS No: not available

Formula: Not applicable

Molecular weight: Not applicable

III. Physical Data:

Density at 15°C (gcm-3) :	0.92
Viscosity at 30°C (cSt) :	52
Flash point (°C) :	240
State :	Liquid at room temperature
Solubility :	Organic solvents. Insoluble in water
Appearance :	Similar to Castor oil
Odour :	Similar to raw castor oil
Color:	Golden yellow
Refractive index:	1.4735
Free fatty acids (% as C18:1)	4.54— 6.7
Acid value (mg KOH. g-1)	1.24— 4.24
Total saturated (%)	22.3
Total mono unsaturated (%)	42 – 43.1
Total PUFA (%)	34 – 36
Iodine value (mg.I2.g-1)	97.1—111.6
Peroxide value (mg reac. O2 g-1)	3.5
Saponification value (mg KOH.g-1)	169.9—197
Calorific value	37.8 MJ/kg

Note: *Since it is a natural product, the exact physical and chemical data may vary from that mentioned in this sheet.*

IV. Fire and Explosion Hazard Data

Extinguishing media: Carbon dioxide, dry chemical/powder or foam spray.

Special fire fighting procedures: If involved in fire, don NIOSH/MSHA approved self-contained breathing apparatus and flame/chemical resistant.

Unusual fire and explosion hazards: Data not available, avoid inhalation of fumes

V. Health Hazard Data

Signs and symptoms of exposure:

Ingestion:

Human: Data not available but available for seed, Expected to be similar for seeds causing vomiting, diarrhoea, abdominal pain, and burning sensation in the throat.

Ruminants: Data not available. The symptoms are expected to be similar for seeds causing diarrhea, dyspnea, dehydration, paresis of the hind limbs and recumbency before death. Lack of appetite, reduced water consumption, sunken eyes and reduction in glycogen content were important signs. Histopathology showed hemorrhage in rumen, reticulum, kidney, spleen and heart, emphysema and cyanosis, tracheal froths, ascites and hydropericardium, congestion of lung.

Rats: Haemolysis of blood, destruction of mucous layer, intense inflammation in the intestine in the rats.

Molluscs: LC50 (50 ppm) against *Biomphalaria glabrata*

Inhalation: Data not available

Skin contact: Generally no effect, may cause irritation in some individuals

Eye contact: Data not available, contact may cause irritation and conjunctivitis.

Acute toxicity of seeds: LD50 oral rat:6 ml/kg
LD50 oral mouse:Data not available

Acute effects of exposure: May cause skin, eye and upper respiratory irritation.

Chronic effects of overexposure: Harmful to the skin and eyes, may cause tumor promotion.

Emergency and First Aid Procedures

Swallowing: If swallowed, wash mouth out with water and immediately call a physician.

Skin: If skin contact occurs, immediately wash skin with soap and water.

Inhalation: If inhaled, remove to fresh air. If not breathing, perform cardiopulmonary resuscitation (CPR) and call a physician.

Eyes: If eye contact occurs, flush eyes with water for at least 15 minutes. Assure adequate flushing by separating eyelids with fingers. Consult a physician if irritation persists.

VI. Reactivity Data

Stability: Stable when kept away from light, exposure to atmosphere and other oxidizing agents. Like any other oil turns rancid on exposure to air

Hazardous polymerization: Not expected to occur under normal working temperature and pressure.

Hazardous decomposition products: Not expected to occur under normal working temperature and pressure

Incompatibility/Materials to avoid: Oxidizing agents, strong acids, alkalies and moisture.

Combustion products: Carbon monoxide, carbon dioxide.

VII. Spill or Leak Procedures

Waste disposal: Discharge, treatment or disposal may be subject to local laws.

Steps to be taken if material is spilled or released: Wear protective gloves, lab coat and safety glasses. Use vermiculite or another suitable absorbent to clean up the spill. After cleanup, wash down the spill site with water containing detergent and wash with water, ventilate the area. Prevent from entering drains, surface and ground water. Place all contaminated materials in an appropriate waste container and dispose of in accordance with federal, state and local regulations.

III. Handling and Storage

Handling: Avoid contact with skin, eyes and clothing. Protective gloves, lab coat and safety glasses should be worn when handling this product.

Storage: Store in a cool area. The oil should be stored in airtight, dark colored container to avoid direct contact with sunlight. Keep away from oxidizing agents, alkalies, acids and flammable materials.

Transport: may be transported in a manner similar to other vegetable oils. The containers used after transporting Jatropha oil should be thoroughly cleaned and made free of toxins before transporting other oil, liquid or material

IX. Exposure Control/Personal

Protection Information: Wear protective gloves, safety glasses and lab coat when working with this product. An eyewash station and safety shower should be in proximity to the work area. The working area should be good ventilated, preferably with an air exhaust. Ensure that all ignition sources are removed from the area before working with this product. Dispose of all waste in accordance with federal, state and local regulations.

To the best of our knowledge the above information is true and accurate but does not purport to be all-inclusive and shall be used only as a guide for experienced personnel.

This information relates only to the specific material designated (here *Jatropha curcas* oil), and may not be valid for such materials used in combination with any other materials or in any other process.

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