1. Identification of the substance and of the company

Product name	Jatropha oil
French product name	Huile de jatropha
INCI Name	Jatropha curcas seed oil
Extraction method	Cold pressed and decanted
Quality	100% pure and natural
Application	Skin conditioning, soap making
Supplier	SOPREEF
Adress	BP 53, Sokone, Sénégal sopreef@vivredurable.net

2. Hazard Identification

Eye contact	N/A
Skin contact	Irritant
Ingestion	Purgative
Inhalation	N/A

3. Composition/Information on ingredients

INCI	Jatropha curcas seed oil
CAS	N/A
EINECS	919-365-0
Restrictions	N/A
Status	Fixed oil
Origin	Senegal
Functions	Emollient
Uses	Skin care : soap making White, flavoured, foamed, antiseptic soap. Agriculture : pesticidal properties. Protects seeds against insect during storage with long remanence, and young plants against fungi. Industry : biofuel, lubricant, bioresource for polyurethane synthesis

4. First aid measures

Eye contact	Wash thoroughly with copious amount of water for at least 15 minutes. Seek medical advice if symptom persists.
Skin contact	Eventually wash with soap and water- get medical attention if any
Ingestion	If ingested in large quantities, seek medical attention if discomfort is encountered.
Inhalation	Remove victim to fresh air

In case of doubt or if irritation and symptoms persist, seek medical advice.

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5. Fire Fighting Measures

Extinguishing media recommended:

Suitable	Carbon dioxide dry powder or foam, sand.
Unsuitable	Water (can help spread the flame).
Fire protection	Keep away from, and avoid contact with, flames and sparks. Do not smoke
Extinguishing procedures	Closed containers may build up pressure when exposed to heat and should be cooled with water spray.

6. Accidental Release Measures

Personal precautions	Be careful of slipping after spill or leak.
Prevention	Contain and absorb leaks with non-combustible absorbent materials, such as sand, soil, vermiculite and diatomaceous earth in the barrels for waste disposal. Contain spillage with sawdust. Use individual protective equipment (safety glasses, waterproof-boots, suitable protective clothing) in case of major spillages.
Environment protection	Do not allow to enter drains of water sources.
Cleaning up methods for spillages	Remove all potential ignition sources. Contain spilled material. Cover with an inert or non-combustible inorganic absorbent material, sweep up and remove to an approved disposal container. Clean with hot water and detergents. Do not use solvents. Observe state, federal and local disposal regulations.

7. Handling and storage

Handling	Use only equipment resistant to vegetable oils, avoid leaks and ensure it does not soak into the floor Apply good manufacturing practice & industrial hygiene practices. Observe good personal hygiene, and do not eat, drink or smoke whilst handling. Avoid static discharges.
Storage	Keep in tightly sealed containers, in an inert atmosphere and away from light, heat and moisture. Keep air contact to a minimum Keep away from and avoid contact with flames, sparks or strong oxidizing agents

8. Exposure Control/Personal protection

Respiratory protection	No special measures under normal use
Hand protection	No special measures under normal conditions.
Eye protection	Safety glasses if there is a risk of splashing
Other protective equipment	Work clothing, mask and safety shoes
Work/hygiene practices	Wash hands with soap & water after handling.

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9. Physical and chemical properties

Appearance	Oil
Odour	Characteristic.
Colour	Dark yellow to reddish
Specific gravity	0.92 g/mL at 20 °C
Water solubility	N/A
Acid value	<4.5 mg KOH/g oil
Peroxide value	0.55 - 2.40 meq peroxides O2/kg oil
Iodine value	89 - 110
Saponification value	194 - 208 mg KOH/g oil
Melting point/Freezing point	5 °C
Smoke point	247 °C
Flash point	>295 °C
Components	35% linoleic acid (C18:2) 15% palmitic acid makes soft, durable soaps Main toxic component is phorbol esters (up to 3.77 mg/g)

10. Stability and reactivity

Reactivity	No significant reactivity hazard
Chemical stability	Generally stable under the recommended storage conditions, can go rancid on exposure to excessive air and heat
Shelf life	> 12 months
Possibility hazardous reactions	Hazardous polymerization will not occur
Conditions to avoid	Avoid strong acids, alkali, oxidizing agents or heat.
Decomposition products	None (thermal decompositions products are H2O and CO2)

11. Toxicological Information

Phorbol esters are very sensitive to alkali, acid, elevated temperature, light and atmospheric atmosphere. During saponification, they are broken down into alcohols and salts of carboxylic acids

Curcin is an active toxalbumin. It is destroyed by heating at 130°C for 30'

Tocopherol permissible limit is 0.09 mg/g

Acute LD50	N/A
Dermal and eye irritation	Potential skin irritation
Carcinogenicity, Mutagenicity	Phorbol esters are responsible for tumor promotion as they stimulate protein kinase C which is involved in signal transduction and developmental processes of cells and tissues. Curcin is used as antitumoral agent for its capacity to prevent ribonucleic synthesis

12. Ecological information

Ecotoxicity	Toxicity reported for insects, fish and mammals
Biodegradibility	Biodegradable and unlikely to accumulate in aquatic or soil environment.
Precautions	Prevent surface contamination of soil, ground & surface water

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13. Disposal Consideration

Do not pour into drains or into water sources.

Incineration	Incinerate in accordance with local regulations.
Disposing of used containers	Observe the local regulations

14. Transport Information

- Transport the product in accordance with ADR/US DOT for road transport, RID for rail transport, IMDG for sea transport and ICAO/IATA for air transport.
- Not classified as hazardous for transport

15. Regulatory Information

N/A

16. Other information

Medicinal properties

The jatropha oil is considered as a potential source for medicine molecules. Studies have demonstrated phyto-pharmacological activities such as anti-viral, anti-inflammatory, anti-bacterial, anti-fungal, anti-cancer. It has strong cathartic properties and is used to reduce rheumatic pain and and for skin diseases.

Otherwise, antagonistic properties of the phytochemical such as antitumor and tumor promotion properties suggest caution in its use.

Soap making

Phorbol esters are very sensitive to alkali, acid, elevated temperature, light and atmospheric atmosphere. They are removed efficiently, up to 99.5%, by adsorption process, reducing their content in oil under the 0.09 mg/g permissible limit. Bentonite 200 has been identified as suitable adsorbent (15 mn time, 3.2% bentonite 200, 32°C, 100 rpm stirring rate). Furthermore, during saponification, esters are broken down into alcohols and salts of carboxylic acids.

Industrial use

As a lubricant, Jatropha oil has higher anti friction and anti-wear ability than engine oil and hydraulic oil

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Sources

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- https://www.researchgate.net/publication/290963550_Medicinal_and_cosmetics_soap_production_from_Jatropha_oil

European Commission database for information on cosmetic substances and ingredients
https://ec.europa.eu/growth/tools-databases/cosing/

Revue of publication on Jatropha oil as bioresource
http://www.vivredurable.net/spip.php?article142

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