LEMONGRASS OIL

Section 1	Identification of the Substance/Mixture and of Company
1.1 Product Identifier:	Cymbopogon flexuosus, ext.
Other Names:	Traditional Cochin lemongrass oil
INCI Name:	Cymbopogon Schoenanthus extract, Cymbopogon flexuosus herb oil
EC number:	943-552-6
CAS number:	91844-92-7 / 8007-02-1
REACH Registration number:	Registered supply for Khush Ingredients Ltd (UK): **UK-01-3009944558-4-0001** Registered supply for Khush Ingredients BV (NL): **01-2120119366-58-0018**
1.2 Identified Uses:	**Industrial use**: washing and cleaning products **Professional use**: washing and cleaning products; polishes and wax blends; oral care products, cosmetics **Consumer use**: air care products; biocides; polishes and wax blends; cosmetics; washing and cleaning products
1.3 Supplier name:	Khush Ingredients Ltd Unit 14, Oakfield Industrial Estate, Eynsham, Oxon, OX29 4TH UK E: office@khushing.com; T: +44 (0) 1993 882883
1.4 Emergency Telephone Number:	T: 01993 882883 (UK) 9-5pm, email office@khushing.com (cover 6am to 11pm) otherwise contact emergency services and show this datasheet.
Section 2	**Hazards Identification**
2.1 Classification according to Regulation (EC) No 1272/2008 [CLP]	Asp. Tox. 1 – H304 Skin Irrit. 2 – H315 Skin Sens. 1B – H317 Eye Dam. 1 – H318 Aquatic Chronic 2 – H411
2.2 Label Elements Labelling according to Regulation (EC) No 1272/2008 [CLP] **Hazard pictograms**	 GHS05 GHS07 GHS08 GHS09
Signal Word	**DANGER**
Hazard statements	H304: May be fatal if swallowed and enters airways H315: Causes skin irritation H317: May cause an allergic skin reaction H318: Causes serious eye damage H411: Toxic to aquatic life with long-lasting effects

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Precautionary Statements (Prevention)	P261: Avoid breathing dust/fume/gas/mist/vapours/spray. P264+P265: Wash hands thoroughly after handling. Do not touch eyes. P272: Contaminated work clothing should not be allowed out of the workplace. P273: Avoid release to the environment P280: Wear protective gloves/clothing/eye-protection/face protection
Precautionary Statements (Response)	P301+P316: IF SWALLOWED: Get emergency medical help immediately. P331: DO NOT induce vomiting P302+P352: IF ON SKIN: wash with plenty of water. P333+P317: IF SKIN irritation or rash occurs: Get medical help P362+P364: Take off contaminated clothing and wash it before reuse. P305+P354+P338: IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. P305+P317: IF IN EYES: Get emergency medical help. P391: Collect spillage.
Precautionary Statements (Storage)	P405: Store locked up
Precautionary Statements (Disposal)	P501: Dispose of contents/container in accordance with local/regional/national /international regulations. Manufacturer/supplier or the competent authority to specify whether disposal requirements apply to contents, container or both.
2.3 Other Hazards	All essential oils are highly concentrated so have strong aromas and colour that can stain. Lemongrass flexuosus is not identified as having endocrine disrupting properties according to Regulation (EU) 2017/2100 Lemongrass flexuosus does not meet the criteria for vPvB and PBT according to Regulation (EC) No 1907/2006, Annex XIII
Section 3	**Composition/Information On Ingredients**
3.1 Chemical identity of the substance:	Cymbopogon flexuosus oil
Common names(s), synonym(s):	Lemongrass Oil
3.2 Mixture / Natural Complex Substance (NCS)	This is a natural complex substance (NCS). The substance has a natural variability in its composition. It is obtained by steam distillation of the dried grass of Cymbopogon flexuosus.
Chemical Identity of ingredients:	**Classification according to COMMISSION REGULATION (EU) 2017/542 of 22 March 2017 amending Regulation (EC) No 1272/2008** Major components of this natural complex substance are: 65 to 85% **Citral (Neral + Geranial)** – CAS 5392-40-5, EC 226-394-6: Skin Irrit. 2, H315; Skin Sens. 1, H317; Eye Irrit. 2, H319 0.1 to 11% **(D & L) Limonene** – CAS 138-86-3, EC 205-341-0: Flam Liq 3, H226; Asp Tox. 1, H304; Skin Irrit. 2, H315: Skin Sens. 1, H317; Aquatic Acute 1, H400; Aquatic Chronic 1, H410 2 to 10% **Geraniol** – CAS 106-24-1, EC 203-377-1: Skin Irrit.2, H315; Skin Sens.1, H317; Eye Dam. 1, H318

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	tr to 6% **Geranyl acetate** – CAS 105-87-3, EC 203-341-5: Skin Irrit. 2, H315; Skin Sens. 1, H317; Aquatic Chronic 3, H412 0.5 to 3% **β-Caryophyllene** – CAS 87-44-5, EC 201-746-1: Asp. Tox. 1, H304; Skin Sens. 1B, H317 0.5 to 3% **Camphene** – CAS 79-92-5, EC 201-234-8: Flam. Sol. 2, H228; Eye Irrit. 2, H319; Aquatic Chronic 1, H410 tr to 3% **Linalool** – CAS 78-70-6, EC 201-134-4: Skin Irrit. 2, H315; Skin Sens. 1B, H317; Eye Irrit. 2, H319 tr to 3% **δ-Cadinene** – CAS 483-76-1, EC 866-559-5: Asp. Tox. 1, H304; Skin Irrit. 2, H315 tr to 3% **Methyl Heptanone** – CAS 110-93-0, EC 203-816-7: Flam. Liq. 3, H226 tr to 3% **iso-Geranial** – CAS 72203-98-6: not registered tr to 2.5% **Nonanone** – CAS 4485-09-0, EC 224-770-4: Eye Irrit. 2, H319 tr to 2% **α-Pinene** – CAS 80-56-8, EC 201-291-9: Flam. Liq. 3, H226; Acute Tox 4, H302; Asp. Tox. 1, H304; Skin Irrit. 2, H315; Skin Sens. 1B, H317; Aquatic Acute 1, H400; Aquatic Chronic 1, H410 tr to 1.5% **Citronellol** – CAS 106-22-9, EC 203-375-0: Skin Irrit. 2, H315; Skin Sens. 1B, H317; Eye Irrit. 2, H319 tr to 1% **Nerol** – CAS 106-25-2, EC 203-378-7: Skin Irrit. 2, H315; Skin Sens. 1B, H317; Eye Dam. 1, H318; Eye Irrit. 2, H319 tr to 1% **β-Myrcene** – CAS 123-35-3, EC 204-622-5: Flam. Liq. 3, H226; Asp. Tox. 1, H304; Skin Irrit. 2, H315; Skin Sens. 1B, H317; Eye Irrit. 2, H319; Aquatic Acute 1, H400; Aquatic Chronic 2, H411

Section 4	First Aid Measures	
4.1 Description of first aid measures	***4.1.1 General:***	Immediately remove any clothing soiled by the product. Seek immediate medical advice. In case of unconsciousness place patient stably inside position for transportation. Seek immediate medical advice.
	4.1.2 Swallowed:	Drink plenty of water and provide fresh air. Call for a doctor immediately. Seek immediate medical advice.
	***4.1.3 Eye Contact*:**	Rinse opened eye for several minutes under running water. Then consult a doctor. Seek immediate medical advice.
	***4.1.4 Skin Contact*:**	Immediately wash with water and soap and rinse thoroughly. Seek medical treatment.
	***4.1.5 Inhalation*:**	Supply fresh air and to be sure call for a doctor.
	4.1.6 Self Protection of First Aider	Use personal protective equipment as described in section 8 if substance is present
4.2 Most important symptoms and effects, both acute and delayed	None specified (REACH dossier)	

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4.3 Indication of any immediate medical attention and special treatment needed	None specified (REACH dossier)
Section 5	**Fire Fighting Measures**
5.1 Extinguishing media	**Suitable extinguishing media**: water spray, carbon dioxide, dry chemical powder or appropriate / alcohol-free foam. **Unsuitable extinguishing media**: full water jet
5.2 Special hazards arising from the substance or mixture	**Hazardous combustion products:** May produce fumes of carbon monoxide, carbon dioxide and other toxic gases, smoke and soot.
5.3 Advice for Firefighters	Avoid inhalation of smoke and fumes. In case of insufficient ventilation, wear suitable respiratory equipment. Firefighters should wear appropriate protective equipment and self-contained breathing apparatus.
5.4 Emergency Action Code	3[Y] (Foam + BA & Fire Kit)
Section 6	**Accidental Release Measures**
6.1 Personal precautions, protective equipment and emergency procedures	**6.1.1 For non-emergency personnel:** Use personal protective equipment. Avoid saturated vapour / aerosol / mist formation. Avoid breathing vapour / aerosol / mist. Ensure adequate ventilation. **6.1.2 For emergency responders:** As per non-emergency personnel. Wear an appropriate NIOSH/MSHA approved respirator if mist, vapour or aerosol is generated.
6.2 Environmental Precautions	Do not allow material to be released to the environment (soil / surface- or ground water / drains / sewers). Inform respective authorities in case of seepage into water course or sewage system.
6.3 Methods and material for containment and clean up	Clean up spillage promptly. Provide adequate ventilation. Absorb with liquid binding material (sand, diatomite, acid binders, universal binders, sawdust). Use neutralising agent. Treat with 2% sodium hydroxide solution. Keep in upright, suitable, closed containers for disposal and dispose of contaminated material as waste.
6.4 Reference to other sections	Take Hazard and Precautionary phrases (section 2) and sections 7, 8 and 13 into account
Section 7	**Handling and Storage**
7.1 Precautions for safe handling	**7.1.1 Protective measures:** Avoid formation of mist and aerosols. Provide appropriate exhaust ventilation at places where mist / aerosols / excessive vapours are formed. Normal measures for preventive fire protection. **7.1.2 Advice on general occupational hygiene:** Do not eat, drink and smoke in work areas. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas.
7.2 Conditions for safe storage, including any incompatibilities	**Storage:** Keep container tightly closed in a cool, dry and well-ventilated place. **Packaging:** Refer to section 16 for safe packaging information **Incompatibilities:** Refer to section 10
7.3 Specific end use(s)	**Recommendations:** None specified (as per REACH dossier)

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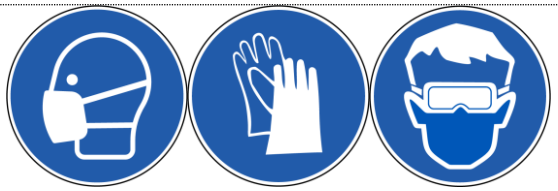
Section 8	Exposure Controls/Personal protection	
8.1 Control parameters	**8.1.1 Occupational exposure limits:** Not available. **8.1.2 Additional exposure limits under the conditions of use:** Not available. **8.1.3 DNEL/DMEL and PNEC-Values:** Not available.	
8.2 Exposure controls		
8.2.1 Engineering controls:	It is recommended that facilities storing or utilising this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low. Handle and store in accordance with good industrial hygiene and safety practices. Wear appropriate PPE according to Directive 89/686/EEC.	
8.2.2 Personal protection equipment:	**General:**	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, using the bathroom and/or smoking. When using, do not eat, drink or smoke. Routinely wash work clothing and protective equipment to remove contaminants.
	Eye/face:	Use tightly sealed protection goggles according to EN 166.
	Skin:	**Hand:** Chemical-resistant, impervious gloves complying with an approved standard (EN374) should be worn if handling substance. The selection of suitable gloves does not only depend on the material (penetration times, rates of diffusion and glove degradation) but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has should be checked prior to the application. The multichemical-resistant glove barrier 02-100 is recommended. **Other:** Wear protective clothing according to that recommended by the risk assessment for the product's use.
	Respiratory:	Respiratory protection (using a suitable respiratory protective device) may be required if excessive airborne contamination occurs.
8.2.3 Environmental exposure control:	Avoid discharge into the environment. Refer to additional information provided in Sections 6 and 7 regarding safe handling and storage to prevent exposure to individuals and/or to the environment. Refer to official regulations (local, Federal, government).	
Section 9	**Physical and Chemical Properties**	
9.1 Information on basic physical and chemical properties	**Physical state**: Clear mobile liquid **Colour**: Yellow to brownish	

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	Odour: Characteristic lemon-like odour **Relative Density (Specific Gravity)** @ 20°C: 0.869 to 0.904 **Refractive Index** @ 20°C: 1.469 to 1.500 **Optical Rotation** @ 20°C: -3.0° to +2.0° **Solubility** @ 25°C: Water - range for constituents = 0.21 to 4364.1 mg/l; in 70% ethanol = 1 : 3 **Boiling Point** @101 325 Pa: 224°C **Vapour Pressure** @ 25°C: 26.66 **Freezing Point** @101 325 Pa: < -20°C **Flash Point**: >71°C (85.3°C Pensky Martens Closed Cup method – REACH dossier) **Flammability**: the study does not need to be conducted because the substance is known to be stable in contact with air and water at room temperature for prolonged periods of time (days) and it does not contain metals or metalloids hence the classification procedure does not need to be applied **Explosiveness**: the study does not need to be conducted because there are no chemical groups present in the molecule which are associated with explosive properties **Auto-ignition temperature** @995.6 to 996.1 hPa: 240°C **Kinematic viscosity**: no data (REACH dossier) **Partition Coefficient n-octanol/water (log value)**: log Kow range of the constituents = 2.06 to 6.64. 90.88% constituents have logKow ≤ 4 **Relative Vapour Density**: no data (REACH dossier)	
9.2 Other Information:	**9.2.1 Information with regard to physical hazard classes:**	Categories not relevant for the safe use of this substance
	9.2.2 Other safety characteristics:	Categories not relevant for the safe use of this substance

Section 10	**Stability and reactivity**
10.1 Reactivity	No further relevant information available
10.2 Chemical Stability	Thermal decomposition/conditions to be avoided: no decomposition if used according to specifications.
10.3 Possibility of hazardous reactions	No dangerous reactions known.
10.4 Conditions to avoid	Keep away from heat or flame. Use only in a well-ventilated area.
10.5 Incompatible materials	Oxidising agents, strong acids, strong alkalis
10.6 Hazardous decomposition products	No dangerous decomposition products known.

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Section 11	Toxicological Information (Historical data – we do not carry out animal testing)
11.1 Information on toxicological effects	**Acute toxicity, oral**: Not classified – LD50 (rat) > 5000 mg/kg bw **Acute toxicity, inhalation**: No studies available (REACH dossier) **Acute toxicity, dermal**: Not classified – LD50 (rabbit) > 2000 mg/kg bw **Eye irritation***:* Corrosive. Studies inconclusive for lemongrass (BCOP assay) but classified as eye damaging (based on geraniol / H318) **Skin Irritation***:* Skin Irritant (Cat. 2), H315 – based on Citral (rabbit, New Zealand White) – OECD Guideline 404 **Skin Sensitivity**: Skin sensitiser (Cat 1B), H317 (Guinea Pig Maximisation Test, OECD 406 - sensitising) **Mutagenicity/Carcinogenicity**: Not classified - Non-mutagenic (Ames Test, OECD 471, Salmonella typhimurium and Escherichia coli) **Fertility/Reproduction**: No studies available (REACH dossier) **STOT-single exposure***:* Data lacking (ECHA C&L) **STOT-repeated exposure***:* Data lacking (ECHA C&L) **Aspiration hazard**: Classified Asp. Tox. 1 – may cause lung damage if liquid enters airways (due to low viscosity of hydrocarbon content)
11.2 Information on other hazard classes which relates to endocrine disrupting properties	No information on other hazard classes specified
Section 12	**Ecological Information**
12.1 Toxicity	*Classified Aquatic Chronic 2, H411* **Fish***:* No studies available (REACH dossier) **Algae***: Raphidocelis subcapitata*: read-across studies from Litsea cubeba, Cymbopogon winterianus and Eucalyptus citriodora, 72h-ErL50 = 18, 34 and 25 mg/L respectively. 72hr ErL10 (E. citriodora) = 12 mg/L **Aquatic invertebrates**: *Daphnia magna* – read-across studies from Litsea cubeba, Cymbopogon winterianus and Eucalyptus citriodora, 48h-EL50 = 4.2, 20 and 6.0 mg/L respectively. **Microorganisms***:* No studies available (REACH dossier) **Terrestrial arthropods**: No studies available (REACH dossier)
12.2 Persistence and degradability	Considered readily biodegradable
12.3 Bioaccumulative potential	No data (REACH dossier)
12.4 Mobility in soil	No data (REACH dossier)
12.5 Results of PBT and vPvB assessment	The substance is not PBT / vPvB

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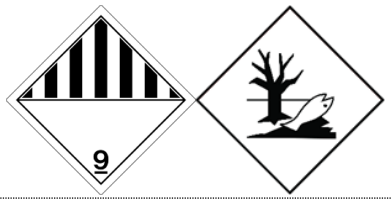
12.6 Endocrine disrupting properties	Lemongrass flexuosus oil is not on the ED-list (https://edlists.org/the-ed-lists) of endocrine disruptors meaning that it is not a substance identified as an endocrine disruptor at EU level (List I), a substance under evaluation for endocrine disruption under an EU legislation (List II) nor a substance considered, by the evaluating National Authority, to have endocrine disrupting properties (List III)
12.7 Other adverse effects	None specified (REACH dossier)
Section 13	**Disposal Considerations**
13.1 Waste treatment methods	**13.1.1 Product / Packaging disposal:** If empty container retains product residues, all label precautions must be observed. Return for reuse or dispose according to national or local regulations; must not be disposed together with household refuse. **13.1.2 Waste treatment – relevant information:** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification. **13.1.3 Sewage disposal – relevant information:** Waste should not be disposed of by release to sewers.
13.2 Special precautions for landfill and incineration	Waste is suitable for incineration
Section 14	**Transport Information**
14.1 UN Number	UN 3082
14.2 UN Proper Shipping Name	Environmentally hazardous substance, liquid, N.O.S. Marine pollutant
14.3 Transport Hazard Class	9
14.4 Packing Group	III
Transport Labels	
14.5 Environmental hazards	See section 2 - IMDG - Marine pollutant
14.6 Special precautions for user	Dangerous Goods Note Tunnel Restriction code: 3 (E)
14.7 Maritime transport in bulk according to IMO instruments	UN 3082, Environmentally hazardous substance, liquid, N.O.S. Marine pollutant Class 9, Group III
Section 15	**Regulatory Information**
15.1 Safety, health and environmental regulations / legislation specific for the substance or mixture	The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No 716)

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15.2 Chemical Safety Assessment	No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier

Section 16	**Other Information**

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The data provided in this safety data sheet is meant to represent typical data for this widely used product. The data is obtained from current and reliable sources, but is supplied without warranty, expressed or implied regarding its correctness or accuracy. It is up to the user to determine safe conditions for use and to assume liability for loss, injury or damage or expense arising from improper use of this product.

Date of preparation or last revision of the SDS:	Date of original preparation of SDS: Dec 2010 Last updated for UK use: Jan 23
Indication of changes:	New template to include information required to meet the new format according to Regulation (EU) 2020/878 (the inclusion of new subsections as well as the expansion of existing information such as sections 11 and 12) P-statement updates (section 2) according to latest version of GHS list (GHS, Rev 9, 2021) Addition of beta-Myrcene, iso-Geranial and Nonanone to section 3 Substitution of <0.01% with 'tr' in section 3 for parity Additional information supplied for ecotoxicity (invertebrates and algae, section 12) 'Specific Gravity' (as alternative to Relative Density) included in section 9

Packaging:	**Type**	**Suitability**
	Glass	Yes
	Steel	Yes
	Aluminium	Yes
	F/HDPE	Yes
	Stainless steel drum	Yes
Shelf Life	36 months when stored within advised conditions, re-test every 12 months thereafter for a possible further 24 months	

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