



MATERIAL SAFETY DATA SHEET

27th July 2014

GENUINE TURPENTINE

SECTION 1: IDENTIFICATION OF SUBSTANCE/PREPARATION & COMPANY

1.1 Product identifier

Product/Material:	Turpentine, oil (gum); gum turpentine oil; turpentine oil
EC No.	932-349-8
EINECS No.	232-350-7
CAS No.	8006-64-2
EU Index No.	None
REACH Registration No.	01-2119553060-53-0008

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

Identified Uses	Component in adhesives, sealants; coatings and paints, thinners, paint remover; ink; fragrances. Solvent.
Uses advised against	No known uses advised against.

1.3 Details of the supplier of the safety data sheet

Supplier:	R.K. & J. Jones Limited
Address:	Southery Road, Feltwell, Thetford, Norfolk, IP26 4EH, UK.
Telephone:	01842 828101
Fax:	01842 828171
Email:	sales@birdbrand.co.uk
Website:	www.birdbrand.co.uk

1.4 Emergency telephone +44 (0) 772 0164 4783 (24 hours) +44 1223 968282

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture

CLP:	Flam. Liq. 3. Acute Tox. 4 (all routes). Asp. Tox. 1. Eye Irrit. 2. Skin Irrit 2. Skin Sens. 1. Aquatic Chronic 2.
DSD:	R10. Xn; R20/21/22. Xi; R36/38. R43. N; R51-53, R65

Note: The above are harmonised classifications according to Annex VI of CLP, but available data shows that the substance does not have classifiable acute oral and dermal toxicity; consequently for acute toxicity it has been registered as Acute Tox 4 (inhalation, H332) and R20 only.

2.2 Label Elements



DANGER

H226: Flammable liquid and vapour. H332: Harmful if inhaled. H312: Harmful in contact with skin*. H302: Harmful if swallowed*. H304: May be fatal if swallowed and enters airways. H319: Causes serious eye irritation. H315: Causes skin irritation. H317: May cause an allergic skin reaction. H411: Toxic to aquatic life with long lasting effects. P260: Do not breathe mist/vapours/spray. P280: Wear protective gloves/protective clothing/eye protection/face protection. P301+P310: IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician. P331: Do NOT induce vomiting. P302+P352: IF ON SKIN: Wash with plenty of soap and water. P333+P313: If skin irritation or rash occurs: Get medical advice/attention. P501: Dispose of contents/container to licensed waste disposal facility.

*See note in 2.1 above (H312 and H303 are disputed).

2.3 Other hazards

High concentrations of vapour in air might present a vapour/air explosion hazards in the presence of an ignition source.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Substance and purity	Gum turpentine oil, 100%
Identification numbers	CAS No. 8006-64-2. EC No. 932-349-8.

Note: This is a multi-constituent substance containing around 15 identified components. It is obtained by the distillation of oils obtained from trees and the precise composition varies according to the species of source tree, extraction method and process conditions. The main components are the terpene hydrocarbons alpha-pinene, beta-pinene and 3-carene, with some sources containing up to 4% dipentene (limonene).

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation:	Remove patient from exposure into fresh air, and keep at rest. Obtain medical aid if symptoms occur.
Ingestion:	Do not induce vomiting. Give patient plenty of water to drink if conscious, keep warm and at rest. If unconscious, place transport patient in secured side recovery position. Obtain immediate medical aid.
Skin:	Remove contaminated clothing and affected area thoroughly with soap and water. Report for medical aid.
Eyes:	Irrigate eyes with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes (do not let run-off water contaminate unaffected eye). Obtain immediate medical aid.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation:	Inhaled vapour may cause irritation of the respiratory system (eg coughing and sneezing), and narcosis (symptoms such as headache, dizziness, drowsiness, nausea and in cases of gross overexposure collapse).
Ingestion:	May cause gastric disturbance (eg vomiting, diarrhoea, stomach cramps).
Skin contact:	May cause skin irritation (eg reddening of skin, itching).
Eye contact:	May cause severe irritation (eg redness, tears, conjunctivitis).

4.3 Indication of any immediate medical attention and special treatment needed.

All cases of exposure should be reported for medical attention. Treatment should be symptomatic and supportive.

SECTION 5 : FIRE FIGHTING MEASURES

5.1 Extinguishing Media: Use foam, dry powder or CO². For larger fires fine water spray may be used (not coarse spray or jet due to risk of spreading the burning liquid).

5.2 Special hazards arising from the substance or mixture:

May produce toxic fumes of organic compounds and carbon monoxide.

5.3 Advise for Fire-fighters:

Wear chemical resistant protective clothing and breathing apparatus. If without risk remover packages from exposure to fire (risk of sealed packages e.g. drums exploding). Spray unopened drums with water to keep cool. Beware of vapour (heavier than air) creeping along ground or through drains or collecting in low areas and accumulating into flammable/explosive concentrations. Prevent leaking product and fire-fighting water from contaminating drains or water courses (cover drains or bund area if practicable).

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

Prevent build up of vapour by ensuring adequate ventilation. Keep all sources of ignition away. Beware of vapour (heavier than air) creeping along through drains or collecting in low area and accumulating into flammable/explosive concentrations. Keep people and animals away. If the accidental release is significant, consider evacuating workplace or exposed area. Wear protective clothing as specified in section 8.

6.2 Environmental precautions:

Prevent split material or contaminated wash or fire-fighter water entering drains or watercourses – contain by portable bunding if necessary and protect drains with covers. Prevent material or clean-up waste from contaminating land. Collect up spillages without delay.

6.3 Methods and material for containment and cleaning up:

Contain larger spillages with barriers/bunding if possible and transfer to suitable drum for recovery, recycling or disposal as waste. Otherwise, contain/absorb spillages preferably with industrial absorbent or sand then collect up and transfer using non-metal shovel to suitable drum for disposal. Only use non-sparking tools and equipment. For safe disposal of material, contaminated absorbent or wash water see section 13. Prevent chemical or contaminated wash water from entering drains or watercourses.

6.4 Reference to other sections:

See also Sections 8 and 13.

SECTION 7 : HANDLING AND STORAGE

7.1 Precautions for safe handling:

Generally handle material in ways which minimise vapour build up; where vapour release is likely ensure adequate ventilation and keep all ignition sources away. No smoking.

In a materials handling context (eg. process facility or pouring liquid out of drums) take precautions against static discharge such as grounding containers.

Avoid spillages especially in the presence of ignition sources, oxidising agents, drains and watercourses. Avoid damaging packages. See Section 8 for occupational hygiene and exposure prevention measures.

7.2 Consideration of safe storage, including any incompatibilities:

Material is a relatively stable organic liquid which can release flammable vapours. Store in as designated, well ventilated, dry room or other suitable area at ambient temperatures. Storage areas or buildings should comply with official requirements for the storage of highly flammable liquids. Keep segregated from oxidising agents.

7.3 Specific end uses:

See exposure scenarios where attached to this safety data sheet.

SECTION 8 : EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

Workplace exposure limits (HSE EH40): 100ppm, 566mg/m³ (8hr); 150ppm, 850mg/m³ (15 min)

Workplace exposure limits (Supplier): (Limonene, possible component in gum turpentine oil), 25 ppm, 140 mg/m³ (8 hr); 50 ppm, 300 mg/m³ (15 min)

DNEL (derived no effect level): Workers, acute, dermal: 161 µg/cm² (local effects)
Workers, acute, dermal: 161 µg/cm² (local effects)

Workers, long-term, inhalation: 5.98 mg/m³
General population, acute, dermal: 81 µg/cm² (local effects)
General population, long-term, inhalation: 1.06 mg/m³ (systemic effects)
General population, long-term, oral: 0.31 mg/kg bw/day (systemic effects)
PNEC (predicted no effect concentration): Aqua (freshwater): 8.8 µg/L
Aqua (marine water): 0.88 µg/L
STP: 6.6 mg/L
Sediment (freshwater): 2.27 mg/kg sediment dw
Sediment (marine water): 0.227 mg/kg sediment dw
Soil: 0.45 mg/kg soil dw
Secondary poisoning (hazard for predators), oral: 1.35 mg/kg food

8.2 Exposure controls:

- General:** Check workplace instructions/procedures and risk assessments for any exposure control and person protective equipment requirements (eg COSHH assessments in the UK). Exposure control measures and personal protective equipment specified in these risk assessments should take precedence over the more general recommendations below because they take into account highly variable factors specific to the workplace and activity concerned which cannot be anticipated in a safety data sheet.
- Exposure scenario recommendations:** Relevant exposure scenarios covering specific activities are available on request. The exposure scenarios give recommendations on limiting exposure during that activity, for example by (i) minimising the amount of substance used/handled, (ii) avoiding exposure to the substance for longer than the recommended period and (iii) ensuring general ventilation has the recommended number of air changes (as appropriate).
- Engineering controls:** If significant exposure to liquid or vapour is likely it should be minimised by the use of appropriate containment, engineering control and ventilation measures. Where ventilation is used, adequate local exhaust ventilation is preferred where appropriate for some operations as it removes vapour at source and minimises dispersal into the workplace. (Ensure control measures are spark proof and that precautions have been taken against static charge build-up).
- Respiratory protection:** Not normally required. Otherwise depending upon workplace/incident circumstances use filtering **respirator** with **filter cartridge Type A (organic vapour)** or combination including A, or **breathing apparatus** – see note below for types available. In an emergency or where the concentration of vapour is unknown but could be high use clean air supplied breathing apparatus. Do not use a filtering respirator in: atmospheres containing <19.5% oxygen; poorly ventilated areas; confined spaces; when concentration of vapour is unknown, is 'immediately dangerous to life or health' or is above any workplace exposure limit; for fire-fighting.
- Eye protection:** Wear safety glasses with side pieces or safety goggles to EN166 or 29 CFR 1910.133.
- Skin protection:** Wear chemical resistant protective gloves (eg rubber, neoprene, butyl, PVC or nitrile) to EN374. Do not wear heavily contaminated or damaged gloves, and decontaminate before removal. Check condition regularly, especially for abrasion damage. Wear standard workplace protective clothing (eg laboratory coat, washable or disposable overalls, protective footwear).
- Environmental:** Measures based on adequate handling practices and facilities, containment and filtered extraction intended to minimise exposure to the material should also minimise release of it to the environment. See also Section 6.2.
- General hygiene:** Remove overalls and personal protective equipment before eating, drinking or smoking and before entering office, eating or other 'clean' areas. Wash hands immediately after any contact with chemical. Contaminated clothing and personal protective equipment should be cleaned before removal where practicable and before re-use; if not possible it should be disposed of as chemical waste (see Section 13)

Additional information on respiratory protective equipment referred to above:

Respirator types

Value filtering half mask EN405, half mask EN140, full face mask EN136, powered (hood or helmet) EN146 and EN12941 or powered (full face mask) EN147; Breathing apparatus types – fresh air hose EN138/269, light duty compressed airline (mask) EN12419, light duty compressed airline (hoods, helmets, visors) EN1835, constant flow compressed (hood, mask) EN270/271 and EN139, demand flow compressed airline (mask) EN139 or self-contained (SCBA) EN137. The type and effectiveness of the respiratory protective equipment to be selected cannot be prescribed in a safety data sheet as they depend upon highly variable factors (eg concentration of vapour at the workplace/incident) and circumstances (eg quantity, type of work/incident, location) – consult in-house specialist, workplace procedures or in-house risk assessments.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES.**9.1 Information on basic physical and chemical properties:**

Appearance		Clear colourless liquid
Odour		Characteristic turpentine odour
pH		No data
Melting point	(°C)	-60
Initial boiling point	(°C)	154 (depending on source)
Boiling range	(°C)	154-170°C
Evaporation rate		No data
Relative density	g/ml	0.867
Vapour density	Air = 1	4.69
Vapour pressure	Pa	519 @ 20°C
Viscosity (dynamic)	mPa.s	1.3 @ 25°C
Autoignition temperature	(°C)	255
Decomposition temperature	(°C)	Not applicable (boils)
Flash point	(°C)	34
Flammability (solid, gas)		Not applicable
Flammability limits in air	%	0.8? (lower limit)
Explosivity limits in air	%	No data
Explosive potential		None for liquid (but vapour can form explosive mixtures with air)
Oxidising potential		None
Solubility in water	mg/L	25.5 (Virtually insoluble)
Solubility in other	g/ml	Soluble in many solvents
Log water/octanol partition coefficient		4.49 @ 20°C

9.2 Other information:

No data available on fat solubility, conductivity, redox potential, radical formation potential, photocatalytic properties.

SECTION 10 : STABILITY AND REACTIVITY**10.1 Reactivity:**

Not reported to be particularly reactive under normal circumstances, although gives off a flammable vapour. Can react with oxidising agents and may ignite. Reported to react dangerously with stannic chloride, chromyl chloride, acetone and chlorine. See also 10.3.

10.2. Chemical stability:

Chemically stable but may polymerise (with the evolution of heat) if in contact with strong acids.

10.3. Possibility if hazardous reactions:

May polymerise (with the evolution of heat) if in contact with strong acids (according to one source, but stated not to undergo polymerisation by another source)

10.4. Conditions to avoid:

Those generally applicable to organic chemicals (eg heat).

10.5. Incompatible materials:

Oxidising agents. Strong acids.

10.6. Hazardous decomposition products:

None expected in a use, storage or spillage situation (see Section 5 for fire-related hazards).

SECTION 11: TOXICOLOGICAL INFORMATION**11.1 Information on toxicological effects****Health effects classifications**

CLP Regulation	Acute Tox. 4 (all routes, but see next table). Asp. Tox. 1. Eye Irrit. 2. Skin Irrit. 2. Skin Sens. 1.
DSD	Xn; R20/21/22 (but see next table)-65. Xi; R36/38. R43.

Acute toxicity

<u>Exposure route</u>	<u>Effects</u>
Inhalation	Harmful. Rat inhalation LC50 (4hrs) 13.7 mg/L
Skin	Harmful (according to CLP Annex VI) but unclassified according to data submitted for REACH registration. Rat dermal LD50 >2000 mg/kg
Ingestion	Harmful (according to CLP Annex VI) but unclassified according to data submitted for REACH registration. Rat oral LD50 3700 mg/kg

* Table 3.1 of Annex VI of the CLP Regulation

STOT (Specific target organ toxicant) effects (single and repeated exposure)

<u>Exposure route</u>	<u>Effects</u>
Inhalation	Vapour may cause respiratory irritation (based on read-across from experimentally obtained data on a different but relevant substance (NOAEC: 283.24 mg/m ³ (subchronic; mouse). Moderate hyperplasia observed in the transitional epithelium of the urinary bladder in animal studies.
Skin	No data
Ingestion	No data

CMR (carcinogenicity, mutagenicity, reproductive toxicity)

<u>Exposure route</u>	<u>Effects</u>
Carcinogenicity	Not carcinogenic. In a study with alpha-pinene in mice, minimal to moderate hyperplasia observed in the transitional epithelium of the urinary bladder were observed; this is not thought to be associated with carcinogenesis as it is common in mice but not in rats and neither alpha-pinene nor its metabolites is mutagenic according to in vivo and in vitro studies.
Mutagenicity	Not mutagenic in various bacterial, in vivo and mice studies (substance and relevant metabolites).
Reproductive toxicity	No data but presumed to be not toxic for reproduction: in a repeated dose toxicity study conducted with alpha-pinene, no effects were observed on reproductive organs (tissues examined microscopically: epididymidis, preputial gland, prostate, seminal vesicle and testes for males, clitoral gland, ovary and uterus for females).

Corrosivity and Irritancy

<u>Exposure route</u>	<u>Effects</u>
Inhalation	See STOT effects
Eyes	Irritating to eyes (based on read-across from experimentally obtained data on a different but relevant substance)
Skin	Irritating to skin (based on read-across from experimentally obtained data on a different but relevant substance)
Ingestion	Probably causes irritation to the gastro-intestinal tract

Sensitisation

<u>Exposure route</u>	<u>Effects</u>
Inhalation	No data
Skin	In a study using (-)-beta pinene, stimulation index was higher than 3 at 50 and 100% and EC3 value was determined to be 29%. In maximisation tests on guinea pigs using delta 3 carene and turpentine oil, 15/22 and 16/25 animals showed positive responses, respectively. In a clinical trial, turpentine oil was identified as a strong sensitiser, with 16/25 human volunteers showing positive response to turpentine oil

Aspiration hazard

<u>Comment</u>
Hydrocarbon liquid; if swallowed may be vomited up and damage to lungs

Other toxicological information

Comment

SECTION 12 : ECOLOGICAL INFORMATION**12.1 Toxicity****Acute aquatic toxicity**

Species	Data/Remarks
Fish	96-h LL50 for freshwater fish 29.0 mg/L (96-h LL50 of 29.0 mg/L and NOELR of 5.0 mg/L have been determined for the effect of crude sulfate turpentine on mortality of <i>danio rerio</i>)
Daphnia	48 hour EL50 (daphnia magna 8.8 mg/L
Algae	EC50/LC50 for freshwater algae: 17.1 mg/L EC10/LC10 or NOEC for freshwater algae: 10 mg/L
Sewage treatment plant organisms	No data but low risk due to low acute toxicity and rapid degradation.

Chronic aquatic toxicity

Species	Data/Remarks
Fish	Irrelevant due to low acute toxicity and rapid degradation.
Daphnia	Irrelevant due to low acute toxicity and rapid degradation.
Algae	Irrelevant due to low acute toxicity and rapid degradation.
Sewage treatment plant organisms	EC50/LC50 for aquatic micro-organisms: 736 mg/L EC10/LC10 or NOEC for aquatic micro-organisms: 10 mg/L

Terrestrial toxicity (non-mammalian)

Species	Data/Remarks
Soil organisms	No data
Other species	No data

12.2 Persistence and degradability

Item	Data/Remarks
Persistence	No data
Degradability and process	Readily biodegradable in soil and water (71.7% degradation in 28 days).
Half life/lives	No data
Effect on sewage treatment plant	No data but unlikely due to low acute toxicity and rapid degradation.

12.3 Bioaccumulation potential

Log Ko/w	4.49
Bioconcentration potential and BCF	No data but log Ko/w indicates potential to bioaccumulate although this is unlikely due to low acute toxicity and rapid degradation.

12.4 Mobility in soil

No data but adsorption unlikely due to rapid degradation.

12.5 Results of PBT and vPvB assessment

No data but reported to be unlikely to meet PBT or vPvB criteria

12.6 Others adverse effects

None known.

SECTION 13: DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods****Handling:**

Material is hazardous – see Section 3, 11, 12 and 15 for hazardous information, and Sections 7 and 8 for safe handling advice. See also the exposure scenario for this particular activity (attached to this safety data sheet).

- Material:** Re-use uncontaminated material if possible, otherwise dispose of at a licensed waste disposal site capable of accepting chemical waste in compliance with local regulations. The preferred method of disposal of this organic liquid at such facilities is incineration at >1100 °C with a minimum residence of 13 seconds, with off-gas scrubbing. Do not allow material to contaminate ground, watercourses, sewers or drains.
- Packaging:** Contaminated packaging may be recycled by draining thoroughly, rinsing with plenty of water then checking condition; alternatively it may be disposed of at an approved landfill site in compliance with local regulations. Uncontaminated packaging should normally be reused.
- Regulations:** Some or all of the following legislation may be applicable: (UK) Environmental Protection Act 1990, Part II; Environmental Protection (Duty of Care) Regulations 1991; The Waste Management Licensing regulation 1994 (as amend); Hazardous Waste Regulation 2005 (Replacing Special Waste Regulations 1996 as amended). (EU) Landfill Directive; Regulation on Substances That Deplete the Ozone Layer 1994 (EEC/3093/94).

SECTION 14 : TRANSPORT INFORMATION

This material is subject to the applicable modal transport rules (**ADR** for European road, **RID** for European rail, **IMDG Code** for International sea, **ICAO Technical Instructions** for international air and **ADN** for European inland waterways, in addition to any national rules as the **CDG Regulations** for GB road).

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| 14.1 UN Number | 1299 |
| 14.2 UN proper shipping name | Turpentine |
| 14.3 Transport hazardous class(es) | Class 3 |
| 14.4 Packing Group | III |
| 14.5 Environmental Hazards | Environmentally hazardous substance / marine pollutant |
| 14.6 Special precautions for user | None specific to transport |
| 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code | Not relevant |

SECTION 15 : REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/ Legislation specific for the substance or mixture

(UK) The substance is subject to the control of Substances Hazardous to Health Regulations 1999 and the Dangerous Substance and Explosive Atmosphere Regulations 2002.

Reach: The substance has been pre registered but not yet fully registered under REACH.

15.2 Chemical safety assessment

A chemical safety assessment has not yet been carried out on this substance.

SECTION 16 : OTHER HEALTH AND SAFETY INFORMATION

Abbreviation used in this SDS:

CHIP:	The Chemicals (Hazard Information and Packaging) Regulations 2004
CLP:	Classification, Labelling and Packaging Regulation
CMR:	Carcinogen, mutagen Toxic for reproduction
DSD:	The Dangerous Substances Directive (67/548/EEC)
DPD:	The Dangerous Preparations Directive (1999/45/EC)
LD50:	Lethal dose to 50% of test population
LC50:	Lethal concentration to 50% of test population

L (E)C50:	LD50 and/orLC50
LL50:	Lethal loading to 50% of test population
NOEC:	No observed effect concentration
NOELR:	No observed effect loading rate
REACH:	Regulation (The Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (REACH) (EC) 1907/2006)
UN:	United Nations Model Regulations on the Transport of Dangerous Goods

Sources of data used for this SDS: *(if underlined, indicates used for this safety data sheet or this revision):*

Supplier (safety data sheet and other information)
Lead registrant's CSR
Supplier's other data
ECHA List of registered substances
CLP Classification & Labelling Inventory
CLP Regulation Annex VI
Various internet sources

Text of R-phrases, hazard statements, S-phrases and precautionary statement referred to in this SDS:

R10 = Flammable. R20/21/22 = Harmful by inhalation, in contact with skin and if swallowed. R65 = Harmful: may cause lung damage if swallowed. R36/38 = Irritating to eyes and skin. R43 = May cause sensitisation by skin contact. R51/53 = Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Changes made in this SDS:

Sections 1, 2, 3, 8, 9, 11, 12, 13: More information added

Note: The current official (CLP Annex VI) classification and labelling particulars are shown in this safety data sheet but notes have been inserted stating that in respect of acute and dermal toxicity these are considered to be inappropriate; consequently the classification and labelling of this substance might change in the future. The emergency advice and precautionary advice provided previously remain unchanged. Generally the changes are technical and have been made as a result of the availability of the lead registrant's chemical safety report and exposure scenarios for this substance.

Disclaimer:

If this product is re-distributed and re-formulated for sale, details of its hazards and recommended methods for safe handling must be passed to customers. Customers are urged to ensure that the product is entirely suitable for their own purpose. It is the customer's responsibility to ensure that a suitable and sufficient assessment of the risks created by a work activity using this product is undertaken before this product is used.

Note: The information contained in this Safety Data Sheet does not constitute the users own assessment of workplace risk as required by other Health & Safety Legislation (e.g. the Health and Safety at Work Act, 1974; the control of Substances Hazardous to Health Regulations, 1988). The data given here is based on current knowledge and experience. The purpose of this data sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the product's properties. This information is correct to the best of our knowledge and belief at the date of publication however no guarantee is made to its accuracy. This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process.

25/07/14
Rev. 2/RKJ