

**Material Safety Data Sheet**

Safety data sheet according to Regulation (EC) No. 1907/2006

Printing date 25/10/2011 / Revision date 04/02/2012 / Version No. 2

Product name: e.tenax

**SECTION 1 - Identification of the product and of the company/undertaking**

1.1 **Product identification and product trade name: e.tenax**

1.2 **Relevant identified uses of the substance or mixture and uses advised against**

**Product:** Resin with organic solvents solution

**Use:** component of system conversion for metals-metal pre-treatment before painting

1.3 **Details of the supplier of the safety data sheet:**

ALKEMIA SRL  
VIA SACCARDO, 37  
20134 MILANO ITALY

**E-mail address**

info.alkemia@alice.it

1.4 **Emergency phone**

+ 39 (0) 2 21872267

**SECTION 2 - Hazards Identification**

**Classification of the substance or mixture**

Lists of hazardous ingredients as per DIR. 67/548/CEE, 1999/45/CE and following emendaments

CHEMICAL NAME	CONCENTRATION	HAZARD SYMBOLS (*)	RISKS PHRASES(*)	CAS NUMBER	EINECS NUMBER
N-BUTANOL	< 20.00	Xn Xi	R22 R37/38;R41 R67	71-36-3	200-751-6
2-BUTHANOL	<1.00	Xi	R36/37 R67	78-92-2	201-158-5
ISOBUTHANOL	<0.50	Xi	R37/38;R41 R67	78-83-1	201-148-0
PROPANOL	<10.00	Xi	R41 R67	71-23-8	200-746-9
BUTHYL ACETATE	60.000-70.000	===	R66;R67	123-86-4	204-658-1
3-BUTHOXY-2-PROPANOL	<10.00	Xi	R36/38	5131-66-8	225-878-4
PHENOL (**) (**)	<0.1 (**)			108-95-2	203-632-7

See section 8 for other substances with acknowledge Occupational Exposure Limits

(\*) See section 16

(\*\*) **PHENOL:** Symbols and risks phrases - limit concentration

C ≥ 5% = Symbol T phrases R/24/25 R34

1% ≤ C < 5% = symbol Xn phrases R21/22 R36/38

1% < C = no symbol required (our case)

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**SECTION 3 - Hazard Identification**

HAZARD NATURE - HAZARDS IDENTIFICATION

The product is classified as irritant to eyes (it may cause serious damages to eyes) and flammable.

**Inhalation**

Avoid inhalation. Solvent's vapours high concentration rates may have anaesthetic and narcotic effects and may cause irritation of the respiratory tract, weariness, lack of co-ordination, headache, drowsiness, dizziness, nausea. In particular n-buthanol, 2-buthanol and iso-buthanol are classified as irritant to respiratory tract.

**Skin contact**

Irritant. Avoid contact. The solvents in the product have skin degreasing properties. Repeated ad prolonged exposure may cause irritation and dermatitis. Vapours may be absorbed by skin in significant toxicological quantity. Repeated exposure may cause skin dryness or cracking. In particular n-buthanol, 2 buthanol and iso-buthanol are classified as irritant to skin.

**Contact with eyes**

Irritant. Avoid contact with eyes. The product may cause aches, burning sensations and irritation. In particular isobuthanol is classified as a product that may cause serious damage to eye.

**Ingestion**

Do not swallow. N-buthanol is classified as harmful by ingestion

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**SECTION 4 - First aid measures**

**Inalhatation**

Move the patient from the exposure area. Keep him warm and at rest in a well-ventilated place. In case of disorders call a doctor. In case of respiratory failure, give artificial respiration.

**Skin contact**

Remove contaminated cloths and shoes immediately; rinse thoroughly with runnins water and soap if possible. If irritation persists, call a doctor.

**Eye contact**

Irrigate with running water immediately, keeping eyelids for at least 15 min. Do not contaminate the not injured eye. Rinse, if necessary ophthalmic solution. Seek medical assistance.

**Ingestion**

Do not induce vomiting.

Seek medical advice immediately and provide the Safety Data Sheet.

If the patient is conscious, it is possible to rinse its mouth with water.

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**SECTION 5 - Fire fighting measures**

**Flammability**

The product is classified as flammable.

**Suitable extinguishing equipment**

CO2, dry chemicals, alcohol resistant foam, atomised water. DO not use water jets. Sand or earth are suitable to extinguish small fires.

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**Special procedures /precautions**

Keep unauthorised people away. Spray water to keep the adjacent containers cool. Do not breath the fumes. Use breathing apparatuses and fire protection suits. Firemen must work on the windward side.

**Special hazards**

Vapours may explode if ignited in a confined area. They are heavier than air and expand in into the soil; therefore they may cause a "flashback" ignition at a distance. Explosions may occur if the liquid penetrates into water drains or sewerage systems (notify the emergency service immediately).

**Hazardous combustion products**

Unknown. An incomplete combustion may produce carbon oxide. Complete combustion will release carbon dioxide and water.

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**SECTION 6 - Accidental release measures**

**Spilling into soil or water**

Keep unauthorised people away. Extinguish free flames and remove ignition sources. Air the area. Do not smoke. Provide authorised staff with appropriate protection devices (see section 8). Stop spilling at the source. Notify if the product penetrates into water streams, water drains or sewerage system or if it has contaminated soil and vegetation. Prevent from spreading by using earth, sand or sawdust. Transfer the spilt product into suitable metallic containers. If the spilling occurs into water, prevent from spreading if possible, and remove the spilt product from the surface as rapidly as possible by means of mechanical devises or of appropriate absorbing substances. Seek for a disposal advice in compliance with local legislation prescriptions.

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**SECTION 7 - Handling and storage**

**7.1 Handling**

Use in a well-ventilated area. Avoid contact with eyes, skin and inhalation of vapours or fumes. During work do not eat, drink or smoke. Keep away from foodstuffs. See also section 8. Stick to the following cleaning and sanitary regulations:

- have an accurate wash before any breaks;
- keep personal cloths separate from working clothes
- change and wash accurately dirty clothes.

Vapours are heavier than air and may accumulate also in a dangerous way in holes, depressions, etc. Connect installation to earth.

Use containers and tubes made of solvents resistant materials only. Use stainless steel AISI 304, PE (polyethylene) or PP (propylene) only; brief contacts with iron do not give problems, prolonged contacts may reduce the product efficiency.

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**SECTION 8 - Personal protection/Exposure control**

Store in a well-ventilated area away from sources of heat or ignition. Avoid direct exposure to sunlight. Keep containers tightly closed. Provide connection to earth. Avoid accumulation of electrostatic charges.

**8.1 Occupational exposure limits**

- 1- ACGIH 2000 - American Conference of Governmental Industrial Hygienists
- 2- MAK KOMMISSION (Germany)

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3-Not established (recommended value)

SUBSTANCE	1	2	3
N-BUTHANOL	50ppm - 152mg/m3	100ppm-300mg/m3	===
2BUTHANOL	100ppm - 303mg/m3	100ppm-300mg/m3	===
PROPANOL	200ppm - 492mg/m3	===	===
BUTYL ACETATE	150ppm - 713mg/m3	200ppm-950mg/m3	===
3-BUTHOXY-2-	===	===	50ppm
PROPANOL			
PHENOL	5ppm - 19mg/m3	5ppm-19mg/m3	===

**8.2 Exposure control**

**Engineering control measure**

Provide suitable aspiration installations. Ensure proper ventilation in the workshop where the product is used and stored.

**Respiratory protection**

Provide appropriate respiratory protection, such as active carbon masks, if the exposure level can exceed the above mentioned limits.

**Hands protection**

Solvent-proof resistant gloves.

**Eyes protection**

Protection goggles or face shields if there is the risk of accidental splashes.

**Skin protection**

Wear suitable industrial protection cloths and, if appropriate, waterproof rubber overalls and chemical resistant safety shoes.

**SECTION 9 - Physical and chemical properties**

Physical state /aspect	:	Yellowish transparent liquid
Odour	:	Typical of the contained solvents
Viscosity	:	40-55°C.F.2 at 20°C
pH	:	3-4
Specific weight (water =1) art 20°C	:	0.860 ±0.050 kg/lt
Vapour density 1 atm (air = 1)	:	>1
Boiling point/range	:	96°C (starting point propanol)
Flash point	:	24°C

Explosion limit (STANDARD p AND t% IN VOUME): (*)	LEL(*)	UEL(*)
N-BUTHANOL	1.40%	11.30%
2-BUTHANOL	N/D	N/D
ISO-BUTHANOL	1.70%	6.20%
PROPANOL	N/D	N/D
BUTHIL ACETATE	1.70%	7.60%
3-BUTHOXY-2-PROPANOL	1.10 %	8.40%

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**Solubility in water** : Polymers are not soluble  
n-buthanol, iso-buthanol, buthyl acetate, 2- : Low solubility  
buthanol and 3-butoxy-2-propanol  
Propanol : Totally soluble

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**SECTION 10 - Stability and reactivity**

**Stability**

Stable under normal storage and use conditions

**Conditions to avoid**

Avoid heat, sparks, free flames, electric arcs, accumulation of electrostatic charges.

**Materials to avoid**

Strong acids and basis, strong oxidising agents. Comburent materials.

**Hazardous decomposition products**

None known. See also section 5.

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**SECTION 11 - Toxicological information**

Take into account the concentration of the single ingredients in order to evaluate the toxicological effects o the substance.

Information concerning some of the substances contained in the product is provided here below.

**N-BUTHANOL**

**ACUTE TOXICITY**

**Inhalation**

: High concentrations of vapours may cause irritation of the respiratory tract, headache, dizziness, and narcosis. Poorly harmful. Not lethal for rats in an environment with atmosphere saturated with vapours for 8 h.

**Ingestion**

: Poorly harmful, ORAL LD 50 on rabbits = 4.2 - 7.6 g/kg.

**Skin Contacts**

: Poorly harmful: cutaneous LD50 on rabbit = 4.2 - 7.6 g/kg. May cause dermatitis and eczema. Irritating for the skin.

**Contact with eyes**

: Highly irritating by direct contact with the liquid. Irritating by contact with vapours.

**Chronic Toxicity**

: High concentrations action sites, nervous system, maximum concentration free of effect: 50 ppm/various years.

**Genotoxicity**

: Globally inactive in in-vitro and in vivo tests

**Toxicity for reproduction**

: Fertility, absence of toxic effects on fertility, absence of toxic effect on foetal rowth (in non toxic doses for the mother, rat).

**ISO-BUTHANOL**

**ACUTE TOXICITY**

**Inhalation**

: Irritating for the respiratory tract, the inhalation of high concentrations of vapours may cause headache, dizziness and lost of consciousness.

CL50 inhalation 4 hours rat > 8000 ppm (24.2 mg/l)

**Ingestion**

: Practically not harmful by ingestion, oral LD50 for rats = 2.5 - 3.5 g/kg.

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- Skin contact** : Practically not harmful by contact with the skin, cutaneous LD50 in rabbits = 4.2 g/kg . Possibility of dermatitis and eczema. Irritating for the skin.
- Contact with eyes** : Highly irritating.
- BUTHYL ACETATE**  
**ACUTE TOXICITY**  
**Inhalation** : Low degree of acute toxicity.  
 LC50 for inhalation (rat) 9.6 - 29.2 mg/l/4h.
- Ingestion** : L oral D50 rat > 4700 mg/kg.
- Skin contact** : A single semi-occlusive application for 48 hours, on the intact skin of rabbits provoked least signs of irritation (erythemas/oedemas average points >2)  
 LD50 dermal (rabbit) > 5000 mg/kg
- Cutaneous sensitization** : Cases of cutaneous sensitisation are not known.
- Contact with eyes** : Ocular single application in rabbits caused conjunctival irritations and corneal transitory irritations (punctuation seediness/epithelial small lesions)
- Sub-acute / sub chronic toxicity** : No collateral effects caused by a prolonged long period exposure have been documented.
- Genotoxicity** : No mutagenic activity in bacterial cells with or without metabolic activation has been noticed.
- Reproductive/development toxicity** : Convincing evidences of such effects do not exist.
- 3-BUTHOXY-2PROPANOL**  
**ACUTE TOXICITY**
- Inhalation** : A single and brief (minutes) exposure to inhalation is unlikely to cause negative effects. Single, prolonged (hours) and excessive exposures to inhalation may cause negative effects. Excessive exposure could cause effects on the central nervous system and irritation of the higher respiratory tract.
- Ingestion** : The toxicity of a single oral dose is considered low. The oral LD50 for rats is 3.300 mg/kg. Small quantities incidentally swallowed during the normal product handling operations should not cause damages, however, the ingestion of larger quantities could cause damages.
- Skin contacts** : Poorly harmful: cutaneous LD50 on rabbit = 4.2 - 7.6 g/kg. May cause dermatitis and eczema. Irritating for the skin.  
 A prolonged or repeated exposure may cause irritation to the skin, even burns. The liquid causes burning sensations and itching in the point of contact.
- Contact with eyes** : It may cause moderate irritation to eyes; it may cause moderate corneal injuries.
- Mutagenicity** : Mutagenicity tests in "vitro" provided negative results.
- Toxicity for reproduction** : In studies on animals, it proved not to interfere with reproduction. Deformities at birth are unlikely. Exposures that do not have negative effects on the mother should not have effects on the foetus.

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**Other information** : Observations on animals include liver damages deriving from repeated oral intakes.

**SECTION 12 - Ecological information**

Always use the product following the best working practice and avoid dispersion of the product in the environment.

Information concerning some of the substances contained in the product is provided here below.

**N-BUTHANOL**

**Bioaccumulation** : Pratically not bioaccumulative, log Pow = 0.88  
**Aquatic toxicity** : Practically not harmful to fishes, CE(I ) 50,48 H = 1983 MG/L (din 38412)  
 Bacteria: CE10, 16 h (Pseudomonas Putida) =2250 mg/l  
 Bacteria: Microtox Test: CE50, 5 min (Photobacterium phosphoreum) = 2041 mg/l  
**Long Term Toxicity** : Alga (inhibition of growth) CI 3,8 g (Secenedesmus quadricauda) = 875 mg/l.

**ISO-BUTHANOL**

**Mobility** : Evaporation, T1/2 life = 4 d estimated  
**Persistence/degradability** : In water: easily biodegradable, 90% after 14 days (OECD301E) not hydrolyzable  
 In air: degradation of radicals OH: t1/2 life 1 day  
**Bioaccumulation** : Pratically not bioaccumulative, log Pow = 0.79 (OECD 107)  
**Ecotoxicity** : Acute:practically not harmful to fishes, CL50, 96 h (Pimephales promelas) = 1430 mg/l  
 Fishes: CLO, 48 h (Leuciscus Idus) = 885 mg/l (DIN 38412)  
 Practically not harmful to Daphnia: CE (I) 50, 48 h = 1439 mg/l (DIN 38412) Daphnia: CEO, 48 h = 558 mg/l  
 Practically not harmful to algae: CI50, 48 h (Secenedesmus subspicatus) = 1250 mg/l (DIN 38412)  
 Bacteria: CE10, 16 h (Pseudomonas Putida) = 750 mg/l  
 Bacteria: Microtox Test: CE 50, 15 min (Photobacterium phosphoreum) = 1225 mg/l Long-term toxicity: Daphnia (inhibition of reproduction) CEO, 21 d = 20 mg/l  
 Algae (inhibition of growth) CI 10,48 hg (Secenedesmus subspicatus) = 550 mg/l

**BUTHYL ACETATE**

**Mobility** : The product is volatile/gaseous and it separates in the gaseous phase. The product dissolves rapidly in water. If liberated in the ground it evaporates rapidly.  
**Persitance/degradability:** : The product is easily biodebradable. BOD 28=98% of ThD. The photochemical degradation in the air is rapid.  
**Bioaccumulation** : The product is not supposed to generate bioaccumulation phenomena: Expected biological concentration factor => 4.0.

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- Ecotoxicity** : Test on the following species have given:  
96 h LD50> 184 mg/l (anguella)  
96 h LD50> 95 mg/l (lepomidi)  
96 h LD50> 18 mg/l (ciprinidi)  
24 h EC50 205 mg/l (daphnia)  
72 h EC50 674 mg/l (Algae)
- 3-BUTHOXY-2-PROPANOL**
- Mobility and potential bioaccumulation** : The logarithm of the ottano/water (log/Pow) ratio coefficient is estimated to be 1.15.  
Material is not expected to cause negative long-term effects in the aquatic environment (log Pow <3.0)
- Degradation** : Biodegradation reached in the Modified OECD Screening test after 28 days is 90%. Material easily biodegradable in the environment (BOD 28>60%)
- Aquatic toxicity** : The material is not harmful for aquatic organisms (LC50/EC50/IC50>100mg/l.  
LC50 acute for Poecilia reticulata is 560 - 1000 mg/l. EC50 acute for Daphnia magna is >1.000 mg/l

Recover the product as much as possible. Dispose of in incineration or disposal installations in compliance with the applicable local and national regulations.

Disposal in water streams, water drains, sewerage systems or in ground is an illegal procedure.

EMPTY CONTAINERS NOT COMPLETELY DRY: since empty containers may contain residues of product (liquid or vapour), follow all prescriptions reported in this security data sheets and on the labels, even when they are completely empty and dry.

Residues of vapours in empty containers may explode if ignited. Do not perform cutting, piercing, grinding or welding operations near the container or on the container itself.

Remove labels from empty and reclaimed containers before disposal.

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**SECTION 14 - Transport information****ROAD AND RAILWAY TRANSPORT (ADR/RID)**

- Adequate name** : e.tenax  
**UN Number** : 1263 Paint  
**Class** : 3  
**Classification code** : F1  
**Packing group** : III  
**Hazard Identification number** : 30  
**Label** : 3  
**Special provision** : 640 E  
**Tunnel transport code** : D/E

**SEA TRANSPORT (IMO IMDG)**

- Adequate name** : TENAX  
**UN number** : 1263 paint  
**Class** : 3  
**Packaging group** : III  
**Special provision** : 233 944 955  
**EmS number** : F-E-S-E  
**Hazard symbol** : 3



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**Storing** : Category A  
**Marine pollutant** : NO

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**SECTION 15 - Regulatory information**

LABELLING AS PER ECC REGULATIONS 67/548/CEE, 1999/45/CE AND ITALIAN D.M. 28.01.1992, D.M. 16.02.1993 N.50 AND FOLLOWING EMENDAMENTS E/O MODIFICATION.

**HAARD SYMBOLS**

Xi =Irritant

**RISKS PHRASES**

R10: flammable  
R38: irritant to skin  
R41: risks of serious damages to eyes  
R66: vapours may cause drowsiness and dizziness  
R67: repeated exposure may cause skin dryness or cracking.

The product also contains: ALCOHOLS

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**SECTION 16 - Other information**

**HAZARD SYMBOLS**

T = toxic  
C= corrosive  
Xn = harmful  
Xi = irritant

**RISKS PHRASES**

R22 : harmful by ingestion  
R34 : it causes burns  
R41 : risks of serious damages to eyes  
R66 : repeated exposure may cause skin dryness or cracking  
R67: vapours may cause drowsiness and dizziness  
R41: risk of serious damage to eyes

**COMBINATION OF RISKS PHRASES**

R20/21 : harmful by ingestion and in contact with skin  
R37/38 : irritating to respiratory system and skin

**NOTE SPECIFICATIONS:** EQ = equal

AP = approximately

TR = traces

N/D = information not available

N/AP = not applicable

N/DA = data not available

LEL = lower explosion limit

UEL = lower explosion limit

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The data contained in this Safety Data Sheet comply with the regulation in force and correspond to our current knowledge on the subject. The purpose of this document is to protect the health and safety of industrial and commercial users, capable of understanding and acting according to the information provided. Please make sure that any appropriate person in you company, who is able to handle this data is aware of them. The information reported in the MSDS is not aimed at ensuring any specific property of the products themselves and represent neither a guarantee nor a technical specification of the supplied products.