TriethylAluminum

(TEAL)

2021-01-08 Execute

TEAL Product Description

Triethylaluminum (TEAL)

Product description

Molecular formula	: $(C_2H_5)_3Al$
Molecular weight	: 114.2
CAS No.	: 97-93-8
EINECS/ELINCS No.	: 202-619-3
TSCA status	: listed on inventory

Composition

Component	*Specification*	Test method
Appearance	ColourlessTransparentLiquid	Q/YDST001-2021
Aluminum[b] *(wt%)*	23 min.	Q/YDST001-2021
Triethylaluminum[a] *(wt%)*	95.0 min.	Q/YDST001-2021
Tri-n-butyl-aluminum [a] *(wt%)*	4.0 max.	Q/YDST001-2021
Tri-isobutyl-aluminum [a] *(wt%)*	0.1 max.	Q/YDST001-2021
Hydride, as AlH_3 [a] *(wt%)*	0.10 max.	Q/YDST001-2021
Tri-n propyl Aluminum*(wt%)*	0.10 max.	Q/YDST001-2021

Characteristics:

Appearance	: clear, colorless liquid
Density, 25°C	: 0.832 g/ml
Melting point	: -52°C
Boiling point, 760 mm Hg	: 186°C
Viscosity, 25°C	: 2.5 mPa.s
Stability to air	: ignites upon exposure
Stability to water	Reacts violently, may ignite upon contact
Solubility	: soluble in aromatic and saturated aliphatic and cycloaliphatichydrocarbons

Thermochemical properties

Specific heat, 57°C	: 2.226 J/g.°C (0.532 cal/g.°C)
Heat of vaporization H_v at NBP[c], 1 bar	: 536 J/g (128 cal/g)
Heat of hydrolysis, 25°C	: 4619 J/g (1104 cal/g)
Heat of formation H_f^o, 25°C, 1 bar	: -218 kJ/mole (-52 kcal/mole)
Heat of combustion Hc^o, 25°C	: -5104 kJ/mole (-1220 kcal/mole)

Availability

TEAL is available as the neat pyrophoric liquid and as pyrophoric and non-pyrophoric solutions In a variety of hydrocarbon solvents. Consult your Yound representative for further information.

Storage

TEAL and its solutions are stable when stored under a dry, inert atmosphere and away from heat. TEAL decomposes slowly above 120°C. Thermal decomposition products include hydrogen, ethylene and elemental aluminum.

Packaging and transport

TEAL and its solutions are packed in cylinders and portable tanks
In North America, TEAL is also available in tank trailers and rail cars. Containers are fabricated from carbon steel and are equipped with dip tubes for top discharge and all connections are located in the vapor space.Both packaging and transport meet the international regulations.

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[a] Calculated from gas chromatographic analysis of hydrocarbons and hydrogen obtained by hydrolysis.

[b] Determined by titration of aqueous hydrolyzate.

[c] NBP = normal boiling point

Safety and handling

TEAL ignites upon exposure to air and reacts violently with water. Hydrocarbon solutions of TEAL may also ignite upon exposure to air. TEAL and its solutions must be handled under a dry, inert atmosphere, e.g. nitrogen or argon. Water must be scrupulously removed from process equipment prior to putting it into metal alkyls service. Failure to do so may result in an explosion. Products of complete combustion of TEAL and its solutions are aluminum oxide, carbon dioxide and water.

TEAL causes severe burns to the skin and eyes. It is imperative that proper personal protective equipment be worn when handling TEAL.

Please refer to the Material Safety Data Sheet (MSDS) for further information on the safe storage, use and handling of TEAL. This information should be thoroughly reviewed prior to acceptance of this product.

The MSDS is available at: www.shyound.com .

Applications

TEAL is used as a co-catalyst in the Ziegler-Natta polymerization of olefins

TEAL is also used in the Ziegler growth reaction for the production of α-olefins and α-alcohols and as an alkylating agent in the production of other organometallic compounds and organic intermediates.

Packing Storage and Handling:

Net weight: 1400kg/cylinder or 1200kg/cylinder

Inhalation: make the victim rapidly moved to fresh air place, surrounded the victim in blankets and keep quiet, keeping respiratory tract unobstructed ,when breathing difficulty, provide oxygen to him .

Eating: make the victim vomit, immediately with plenty of water rinse mouth, surrounded his body with a blanket and made him quiet, as soon as possible treatment.

Hazardous characteristics

TEAL expose to air can automatically burn, meet water occurs explosive reaction and blast burning. If encounter heat (above 120 degrees Celsius) decompose reaction, increases container pressure then explosion and Cracking ,Harmful substances : carbon monoxide, alumina smoke.

Extinguishing method and fire fighting

Extinguishing agent: dry powder, vermiculite, dry sand covering

Extinguishing methods: first cut fire burning source as soon as possible, use dry sand

heap up to isolate the fire area, use dry sand, vermiculite shade covering surface to isolate air. Restrain continue to burn, but also will be exposed to air, so continued to burn in the control the fire extinguisher application situation for its burning： Ban to use foam extinguisher, water extinguisher and carbon dioxide extinguisher appliances, etc.

Fire precautions and measures

Fire extinguishing personnel must wear protective clothing ,such as wear fire protection clothing 、 gas mask and wear glasses and leather gloves etc , avoid inhaling three ethyl aluminum combustion generated white smoke, Prohibit irrelevant personnel enter the fire burning area, especially to remove the water nearby. Rapidly evacuate the personnel to safety place.

Environmental protection measures:

make the leaked three ethyl Aluminium complete combustion in control, the combustion residues, sorbent, flame retardant must be collected and transported to the waste landfill site.

Processing methods:

as soon as possible cut leaked source of three ethyl aluminum, if you can control the fire ,to gradually burn off, It is better to use vermiculite cover or dry sand control , powder fire extinguisher, if necessary, burning will be moved to the sate place to do so for further treatment.