DEAC Product Description

DiethylAluminumChloride (DEAC)

Product description

Molecular formula Molecular weight CAS No. **EINECS/ELINCS No. TSCA** status

: (C₂H₅)₂AICL

- : 120.56
- : 96-10-6
- : 202-619-3
- : listed on inventory

Composition

Component	Specification	Test method
Appearance	ColourlessTransparentLiquid	Q/YDST001-2022
DiethylAluminumChloride ^a (wt%)	98.0 min.	Q/YDST001-2022
Aluminum ^b <i>(wt%)</i>	21.9~22.4	Q/YDST001-2022
Chlorine (wt%)	29.2~29.8	Q/YDST001-2022
CL/AL Mol/Mol	0.97~1.03	Q/YDST001-2022
Ingredients of hydrolysis gas (mol%)		
Ethane	97.5min	Q/YDST001-2022
N-Butane	0.5 max.	Q/YDST001-2022
lso-butane	0.2 max.	Q/YDST001-2022
Hydrogen	0.1max.	Q/YDST001-2022
Methane	Trace	Q/YDST001-2022
Propane	Trace	Q/YDST001-2022

Characteristics:

Appearance : transparent liquid Density, 25°C : 0.972 a/ml Melting point :-70°C Boiling point, 760 mm Hg :214.1°C Viscosity, 20°C : 1.6 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 hvdrolvsis. 25°C

Heat of formation H_f^o, 25°C, 1 bar Heat of combustion Hc°, 25°C

: 4619 J/g (1104 cal/g) : -218 kJ/mole (-52 kcal/mole)

: -5104 kJ/mole (-1220 kcal/mole)

Availability

DEAC 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

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

 $^{^{}a}$ Calculated from gas chromatographic analysis of hydrocarbons and hydrogen obtained by hydrolysis.

^b Determined by titration of aqueous hydrolyzate.

^c NBP = normal boiling point

Packaging and transport

DEAC and its solutions are packed in cylinders and portable tanks In North America, DEAC 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.

Safety and handling

DEAC ignites upon exposure to air and reacts violently with water. Hydrocarbon solutions of DEAC may also ignite upon exposure to air. DEAC 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 DEAC and its solutions are aluminum oxide, carbon dioxide and water.

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

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

Applications

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

DEAC 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.