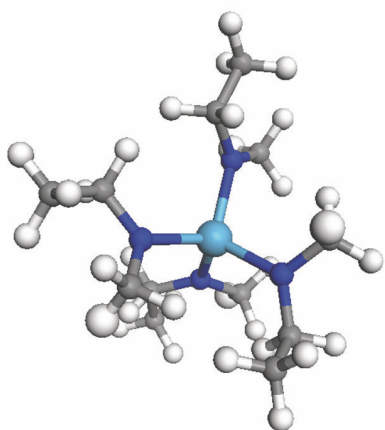


# ALOHA™ CVD/ALD Materials



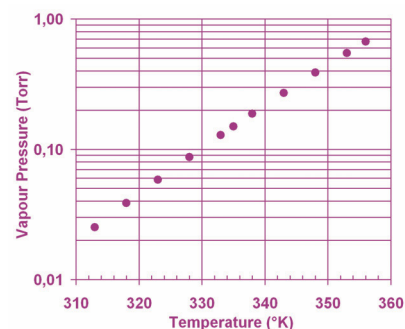
## TEMAZ

Tetrakis[EthylMethylAmino]Zirconium  
 $Zr[N(CH_3)(C_2H_5)]_4$   
 CAS n° 175923-04-3

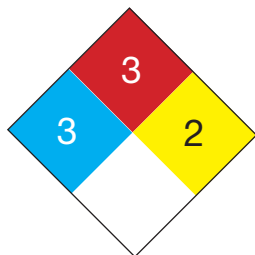
- TEMAZ is primarily used for deposition of pure  $ZrO_2$  or as a mixed oxide of other elements such as Silicon, Aluminum, Hafnium, Titanium, Tantalum, or others.
- TEMAZ can be used both in ALD or MOCVD modes for deposition of high-k films, with  $O_2$  and  $O_3$  being some of the most common co-reactants.
- TEMAZ is a clear liquid that reacts immediately upon contact with water or moisture, with the evolution of ethylmethylamine and formation of zirconium oxide/hydroxide.
- Handling in perfectly dried piping and components is mandatory for high-performance, low particle processing.
- Beside semiconductor application, high purity zirconium is used in the nuclear industry for cladding fuel elements since it has a low absorption cross section for neutrons.
- Each canister of TEMAZ is supplied with a BALAZS™ CofA ensuring strict compliance with specifications.

### Physical & Chemical Properties

Physical Properties	
Molecular weight	323.6 g.mol <sup>-1</sup>
Physical State	Liquid
Color	Pale yellow
Melting Point	< -20°C
Vapor Pressure	~0.1 Torr @ 70°C
Density	1.049 g.cm <sup>-3</sup>



## Hazard Rating



### HMIS

Health: 3  
Flammability: 3  
Reactivity: 2

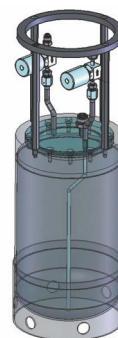
Note that TEMAZ thermal stability is slightly lower than that of TEMAHf. Hence, it is recommended to keep bubblers below 70°C when used for extended period of time.

TEMAZ should be handled considering that the major by-product in case of air exposure is ethylmethylamine. Please consult the ALOHA™ MSDS of TEMAZ for additional data.

All materials in contact with TEMAZ should be compatible with amines. Please consult ALOHA™ for detailed materials recommendation.

## Packaging & Dispensing System

- TEMAZ can be packaged in a variety of canisters depending on the application.
- For on-board applications, TEMAZ is usually supplied in 1200, 1800 or 2500 ml canisters with various valving and dip-tube configurations. Multipoint or continuous level sensing systems can also be customized to meet each specific requirements. ALOHA™'s on-board canisters have all-metal construction and are cleaned and dried by state of the art techniques. TEMAZ can also be filled in properly documented customer-supplied canisters.
- Since TEMAZ has a very low vapor pressure at room temperature, the solvent purge option for Air Liquide's CANDI liquid delivery system is mandatory. ALOHA™'s UHP Hexane or Octane undergo a proprietary drying process for this application. For the cleaning of on-board manifolds and direct exhaust to the tool, a novel, high volatility solvent is also available.



## Transport Information

- Proper shipping name: Organometallic substance, water reactive, flammable, n.o.s. (Tetrakis(ethylmethylamino) Zirconium)
- CAS n° 175923-04-3
- UN Number: 3399
- Class/division: 4.3
- Package group: II
- Hazard Labels required : Class 4.3 (Dangerous When Wet), Class 3 (Flammable)

