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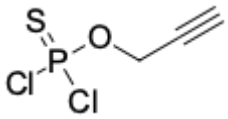
Thiophosphoro alkyne dichloridate (TPAC)

http://www.lumiprobe.com/p/thiophosphoro-alkyne-dichloridate-21300-59-4

Thiophosphoro alkyne dichloridate (TPAC) is a highly reactive phosphorothioate reagent designed for chemoselective histidine bioconjugation. The molecule contains two electrophilic P—Cl bonds and a terminal alkyne handle, enabling direct covalent modification of histidine residues in native proteins followed by bioorthogonal functionalization.

The reagent selectively targets the imidazole side chain of histidine under near-neutral aqueous conditions, forming a stable phosphorothioimidazolide linkage. Compared to conventional acylating or alkylating reagents, thiophosphoryl dichloridates exhibit a strong preference for histidine over lysine, serine, and tyrosine residues, enabling controlled, site-specific protein modification without global denaturation.

The incorporated terminal alkyne group remains inert during the conjugation step and serves as a versatile handle for subsequent click chemistry (CuAAC) with azide-containing fluorophores, affinity tags, or other functional payloads.



Structure of Thiophosphoro alkyne dichloridate (TPAC)

General properties

Appearance:	colorless liquid
Molecular weight:	189.00
CAS number:	21300-59-4
Molecular formula:	$C_3H_3Cl_2OPS$
IUPAC name:	O-(Prop-2-yn-1-yl) phosphorodichloridothioate
Solubility:	DCM, THF, chloroform, acetonitrile, toluene
Quality control:	NMR ^1H and HPLC-MS (95+%)
Storage conditions:	24 months after receival at -20°C in the dark. Transportation: at room temperature for up to 3 weeks. Desiccate.
Legal statement:	This Product is offered and sold for research purposes only. It has not been tested for safety and efficacy in food, drug, medical device, cosmetic, commercial or any other use. Supply does not express or imply authorization to use for any other purpose, including, without limitation, in vitro diagnostic purposes, in the manufacture of food or pharmaceutical products, in medical devices or in cosmetic products.