5-Methyl-3-vinyl-2-oxazolidinone

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EXSYN®
ESSENTIAL CHEMISTRY

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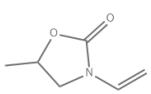
INTRODUCTION

5-Methyl-3-vinyl-2-oxazolidinone (V-MOX) is a highly reactive monomer valued for its low viscosity, mild odor, and excellent reactivity. It is widely used as a reactive diluent in UV-curable inks and coatings, where it enhances adhesion, produces brighter colors, and improves safety compared to conventional diluents. In addition, V-MOX serves as a key building block in the synthesis of kinetic hydrate inhibitor (KHI) polymers, which are applied in oil and gas production to prevent hydrate blockages in pipelines.

Manufacture

V-MOX can be synthesized via a two-step process. In the first step, Cu(II)-catalyzed cyclization of (±)-1-amino-2-propanol with carbon monoxide under an oxygen atmosphere affords 5-methyl-2-oxazolidinone. This intermediate then undergoes ruthenium-catalyzed vinylation with acetylene to give V-MOX in good yields. Alternatively, V-MOX can also be obtained through pyrolysis of 3-(1-hydroxyethyl)-5-methyloxazolidin-2-one.

Synonyms	*N*-Vinyl-5-methyl-2-oxazolidinone/ V-MOX
CAS no.	3395-98-0
EINECS no.	809-852-5
Molecular formula	$C_6H_9NO_2$
Molecular weight	127.14
Structure	

Applications

V-MOX is a versatile chemical intermediate and functional monomer, primarily used in specialty polymers and coating. The main areas of application include:

- **Printing Inks & 3D Printing:** V-MOX acts as a reactive diluent in UV-curable inks and coatings, where it enhances adhesion to difficult substrates (plastics, metals, glass), and Improves gloss, scratch resistance, and weatherability.
- **UV Curing:** As a reactive diluent, VMOX reduces the viscosity of formulations and participates in the UV curing process itself, leading to polymers with good adhesion, durability, and vivid colors.
- **Oil & Gas Industry:** Serves as a building block for **kinetic hydrate inhibitor (KHI)** polymers**,** preventing gas hydrate blockages in subsea pipelines. Offers improved stability and efficiency in flow assurance applications.
- **Materials Science:** It serves as a building block for creating new polymers and materials with specific mechanical and chemical properties, including potential use in biomedical applications.
- **Coatings & Surface Modification:** Imparts durability and chemical resistance when incorporated into coating formulations. Supports development of thin, uniform, and crosslinked films.
- **Adhesives & Sealants**: Contributes to strong bonding and fast curing under UV or electron-beam radiation. Especially valuable in electronics assembly and packaging.

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SPECIFICATIONS

Test	Unit	Specification
Appearance	-	Nearly colourless liquid
NMR -H	-	Should correspond to the structure
Purity (By HPLC)	% Area	Min 98.0

STORAGE & PRECAUTION
Keep sealed at room temperature, protected from light

PACKING
Compliant with international regulations

REACH Status
Not registered

ExSyn offers 5-Methyl-3-vinyl-2-oxazolidinone on commercial scales and welcomes enquiries. ExSyn has a capacity to supply this chemical over 1000MT annually. Our exceptional quality and service will make ExSyn your supplier of choice! If you need any additional information or SDS, please contact us.