Monument Chemical

2-METHYLTETRAHYDROFURAN
(2-MeTHF)

Monument Chemical produces high-quality 2-Methyltetrahydrofuran (2-MeTHF) at our Bayport, Texas facility. Leading pharmaceutical and fine chemical companies around the world have embraced 2-MeTHF as a green solvent with unique properties and performance advantages over alternative products.

2-MeTHF fits very well in Monument's product portfolio for the fine chemical and pharmaceutical industry. Together with THF (stabilized and unstabilized) and MTBE High Purity and Isopropyl Acetate, it serves as high-purity solvent in a wide range of applications. 2-MeTHF is offered in bulk and drums to the global customer base. It is typically stabilized with BHT, but alternative stabilizers are used as well – adjusted to customer's expectations.

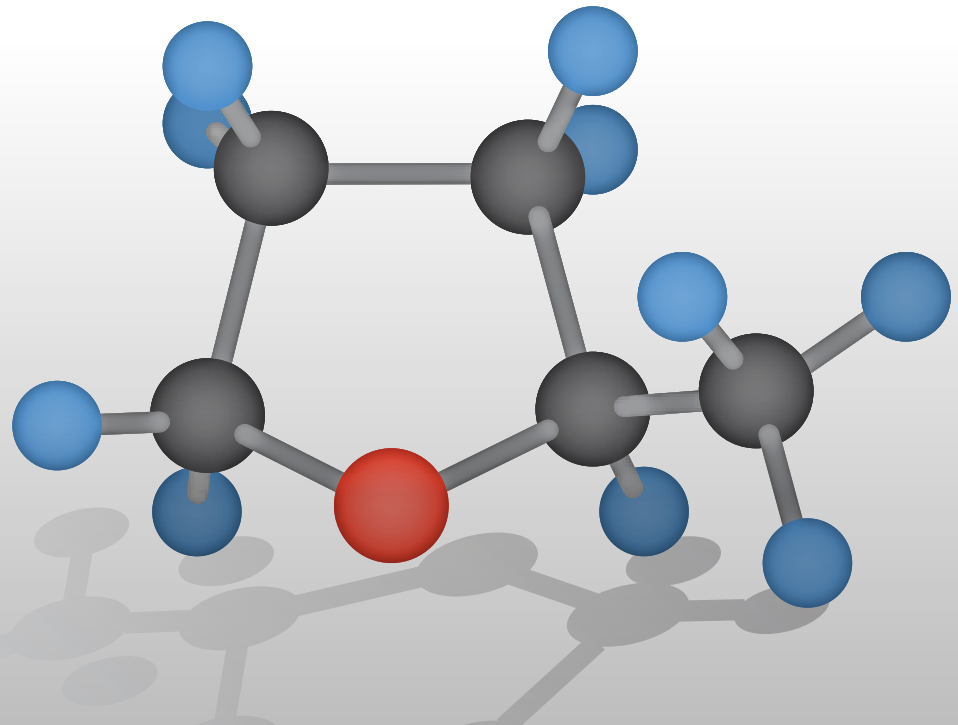
At Monument, we have a strong focus on safety, quality, and reliability. We are eager to learn more about your requirements and look forward to serving as your supplier for 2-MeTHF.

2-MeTHF Features & Applications:

- Organometallic Reactions
- Grignard Reactions
- Extraction Solvent
- Hydrogenation
- Alternative to Dichoromethane for biphasic reactions

The Monument Advantage

- Broad portfolio of fine chemicals & pharma solvents
- Strong focus on safety, reliability, and quality
- Highly responsive to customer needs

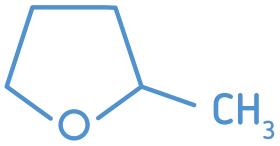


2-Methyltetrahydrofuran Physical Properties and Advantages

Physical Properties	Regulatory Toxicity	Typical Properties
MP = -136°C	ACGIH = Not listed	Assay = 99.9%
BP = 77-79°C	CA Prop 65 = Not listed	Appearance = Clear and free
MW = 86.13 g/mole	LC50 (inhalation, rat) = 6,000 ppm (4 H)	Water = 300 ppm, max
Formula = $C_5H_{10}O$	LD50 (skin, rabbit) = 4,500 mg/Kg	BHT = 150-400 ppm
Density = 0.853 g/ml	EINECS Number = 202-507-4	

Extraction Solvent

By using 2-MeTHF as an extraction solvent instead of THF or dichloromethane, you can take advantage of the low water solubility, higher extraction efficiency, clean phase separation, and acid/base stability to increase your isolated yields and simplify your downstream product isolation.



Grignard Reactions

The use of 2-MeTHF as a reaction solvent in Grignard reactions yields important benefits, as the formation of allylic and benzylic Grignards proceeds with a higher yield and with a reduced level of the undesired forming of Wurtz coupling by-product.[1] Not only has it been found that 2-MeTHF diminishes undesired Wurtz coupling in the Grignard reaction, but it has also been shown that nickel catalyzed cross-coupling of aryl Grignards in 2-MeTHF can be carried out in good yields.[2]

[1] *Grignard Reaction in Mixed Solvent Systems, from CHI's Process R&D Summit, Philadelphia, PA (October 4-6, 2006).*

[2] *Zhenhua Li, et. al., Synthesis of 2, 4-diarylquinolines: nickel catalyzed ligand -free cross-couplings of 4-chloro-2-arylquinolines with arylmagnesium halides in 2-methyltetrahydrofuran. Journal of Chemical Research, 35 (4) 240-242 (2011).*

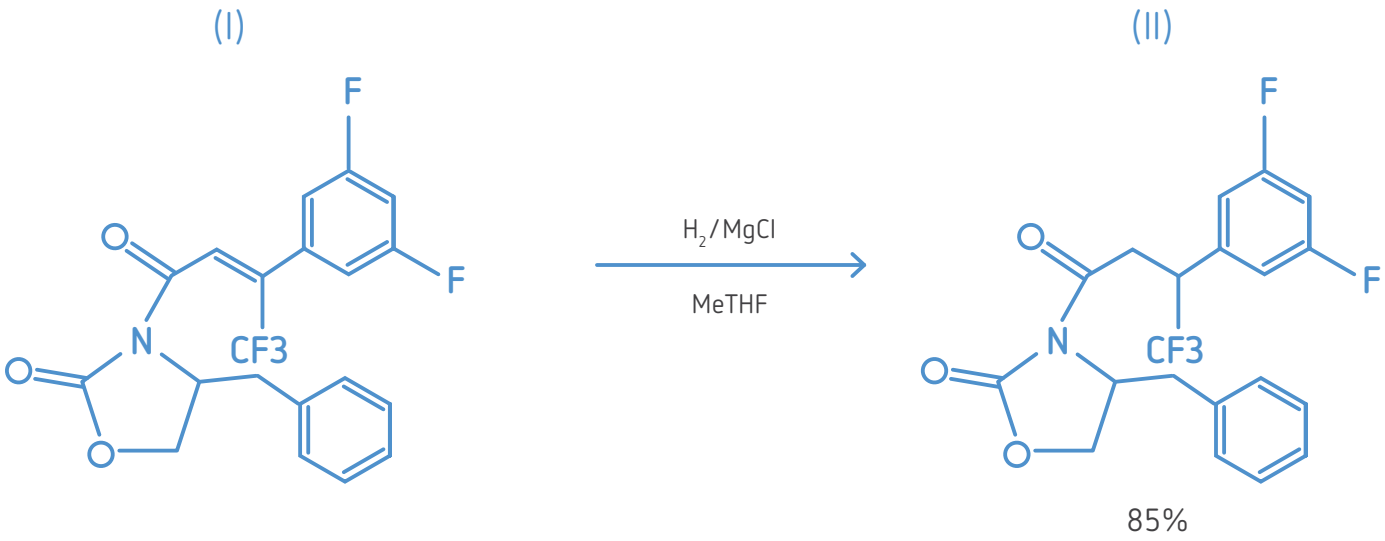
Organometalic Reactions

An additional advantage of using 2-MeTHF in organometallic-based reactions is the improved stability of n-butyllithium in 2-MeTHF versus in THF. The half-life of n-butyllithium at 35°C was measured as 70 minutes in 2-MeTHF, while only 10 minutes in THF.

Hydrogenation

Reduction of a compound (I) in a 2-MeTHF solution in the presence of MgCl gave an 85% average yield of the desired product (II) over an 18-batch campaign. Conversely, the same reaction using THF and MgBr proved problematic on scale-up due to side reactions of the product (II).

[3] *Terence Connolly, et. al., Modified Chelation-Controlled Reduction of an N-Acryloyloxazolidin -2-one, from Organic Process Research & Development, 14 (6), 1456-1460 (2010).*



LET'S START THE CONVERSATION!

Our current portfolio includes a broad range of additional products for the pharmaceutical and fine chemicals market. Our team is continually expanding our capabilities to deliver the specific products our customers need – when and where they need them.

High Purity Methyl Tertiary Butyl Ether
(MTBE HP)
CAS# 1634-04-4

Isopropyl Acetate
(IPAc)
CAS# 108-21-4

Tetrahydrofuran
(THF)
CAS# 109-99-9

WHAT ELSE CAN WE MAKE POSSIBLE FOR YOU?

Learn more about us at **www.monumentchemical.com**

Monument Chemical

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