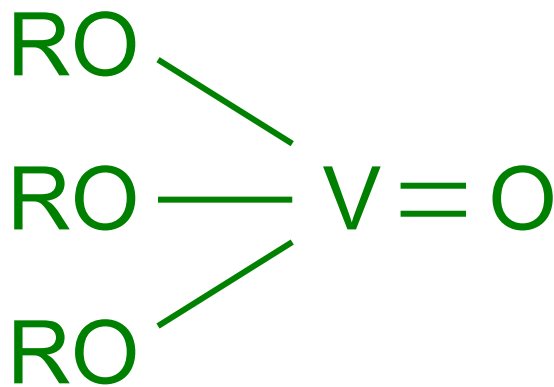


Vanadiumoxyalkoxide

Vanadiumoxyalkoxide



Technical data

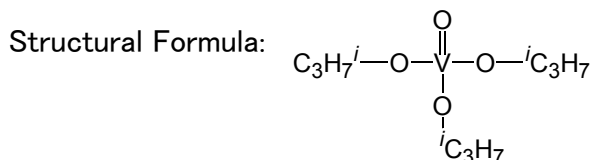
NICHIA CORPORATION

Vanadiumoxytriisopropoxide (Commercial product)

① Physical and Chemical Properties

Chemical Name: Vanadiumoxytriisopropoxide

CAS#. 5588-84-1



Molecular Formula: $\text{C}_9\text{H}_{21}\text{O}_4\text{V}$

Molecular Weight: 244.20

Appearance: Pale yellow liquid.

Boiling Point: 80~82 °C/2 mmHg

Solubility: Freely soluble in almost organic solvents.

Stability: Air and moisture-sensitive.
Slowly decompose at high temperature.

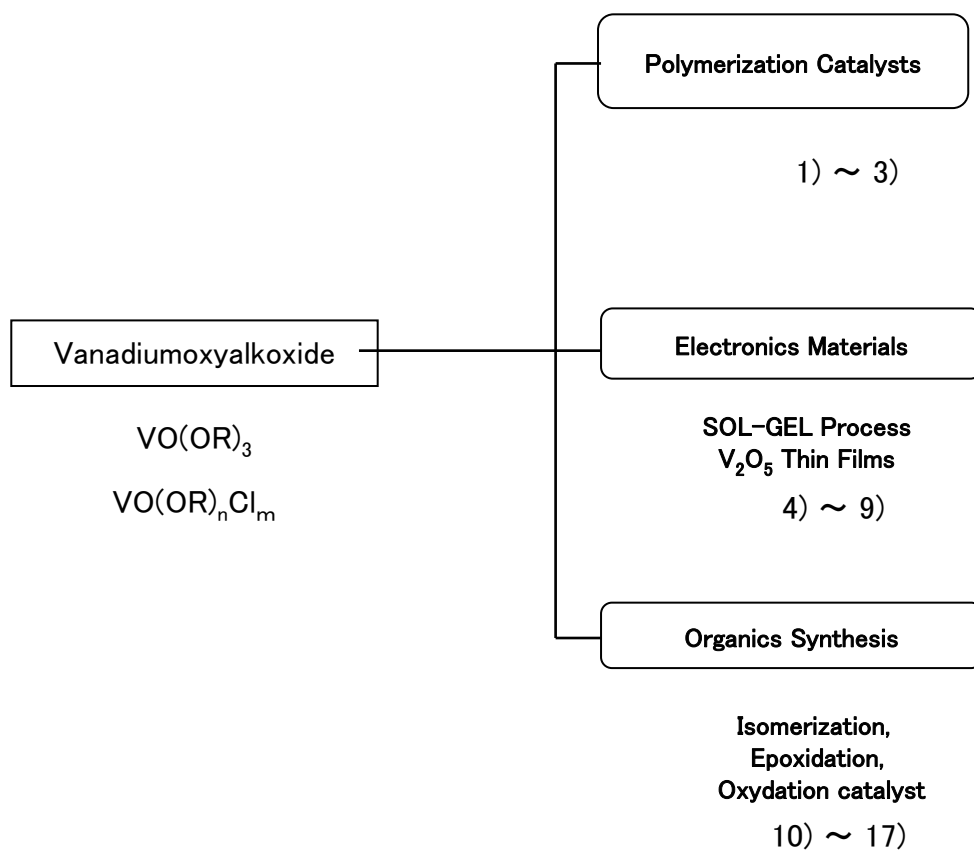
② Quality

	Specification	Typical data	Theoretical value
V^{5+}	: $\geq 20.50\%$	20.83%	20.86%
$\text{V}^{3+}, \text{V}^{4+}$: $\leq 0.50\%$	0.21%	
Fe	: $\leq 0.01\%$	0.001%	

Vanadiumoxyalkoxide (Trial product)

Compositional Formula	Chemical name	CAS No	Physical State
$\text{VO}(\text{OC}_2\text{H}_5)_3$	Vanadium oxytriethoxide	1686-22-2	Orange-Yellow Liquid Vapour Pressure : 72 °C(400 Pa)
$\text{VO}(\text{OC}_2\text{H}_5)\text{Cl}_2$	Vanadium oxyethoxide dichloride	1801-77-0	Pale Yellow Liquid Vapour Pressure : 63 °C(600 Pa)
$\text{VO}(\text{OC}_2\text{H}_5)_2\text{Cl}$	Vanadium oxydiethoxide chloride	-	Orange-Yellow Liquid Vapour Pressure : 68 °C(400 Pa)
$\text{VO}(\text{O}^n\text{C}_3\text{H}_7)_3$	Vanadium oxytri-n-propoxide	1686-23-3	Yellow Liquid Vapour Pressure : 72 °C(20 Pa)
$\text{VO}(\text{O}^n\text{C}_4\text{H}_9)_3$	Vanadium oxytri-n-butoxide	1801-76-9	Yellow Liquid Vapour Pressure : 115 °C(133 Pa)
$\text{VO}(\text{O}^i\text{C}_4\text{H}_9)_3$	Vanadium oxytri-i-butoxide	19120-62-8	Yellow Liquid Vapour Pressure : 80 °C(40 Pa)
$\text{VO}(\text{O}^s\text{C}_4\text{H}_9)_3$	Vanadium oxytri-sec-butoxide	-	Yellow Liquid Vapour Pressure : 80 °C(50 Pa)

1. Applications (Examples)

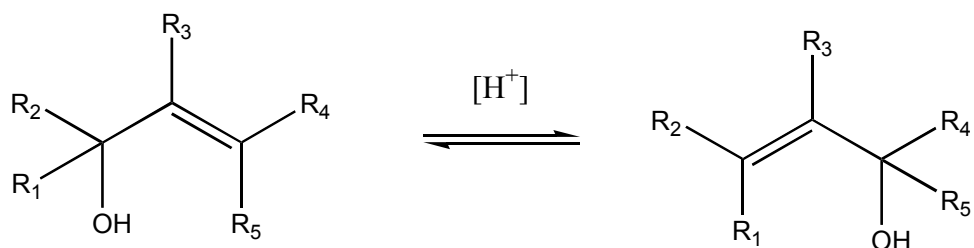


References of Applications

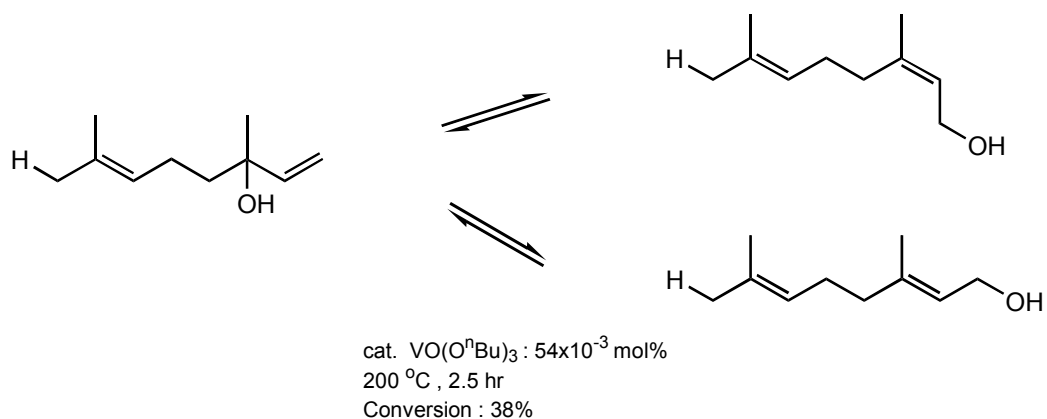
- 1) J. Polym. Sci., Macromol., (A) 3, 2047–2054 (1965)
- 2) J. Polym. Sci., Macromol. Rev., 10, 1 (1975)
- 3) Macromolecules, 4, 482 (1971)
- 4) Chemical Physics Letters, 445, 293 (2007)
- 5) Chem, Mater., 21, 1618 (2009)
- 6) J. Mater. Chem., 4, (10), 1581 (1994)
- 7) J. Mater. Chem., 6, (1), 49 (1996)
- 8) Chem, Mater., 5, (11), 1591 (1993)
- 9) J. Non-Crystalline Solids, 121, 68 (1990)
- 10) Tetrahedron, 57, 5073 (2001)
- 11) Chemistry Letters, 357 (1982)
- 12) JP S 51-48608
- 13) JP S 52-131506
- 14) USP 6566564 B1
- 15) J.Am.Chem.Soc., 95, 6136 (1973)
- 16) J.Am.Chem.Soc., 122, 10452 (2000)
- 17) JP S 61-236737

2. Application in Organic Synthesis

Isomerization

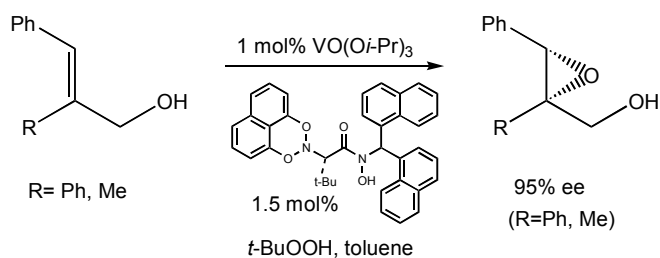


Tetrahedron, **33**, 14, 1775 (1977)



Chemistry Letters, 357 (1982)

Epoxidation

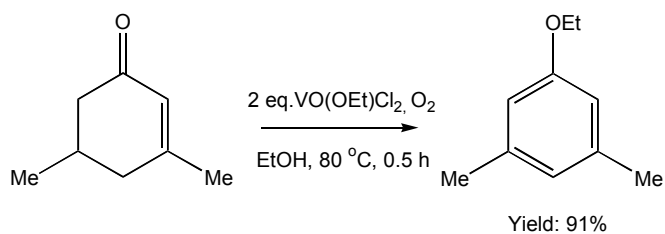


J. Am. Chem. Soc., **130**, 5410 (2000)

J. Am. Chem. Soc., **122**, 10452 (2000)

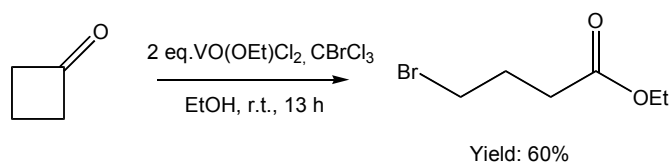
Oxidative transformation reaction of carbonyl compound

Dehydrogenation-oxidation

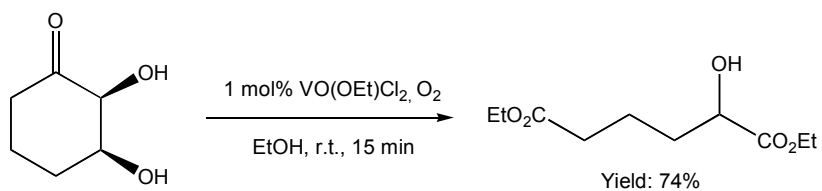


J. Org. Chem., **55**, 358 (1990)

Oxidative cleavage

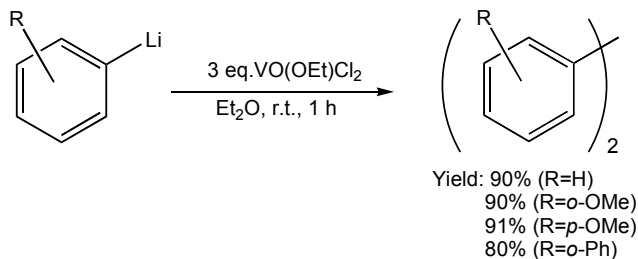


J. Org. Chem., **56**, 2264 (1991)



J. Chem. Soc., Perkin Trans. 1, 7 (1998)

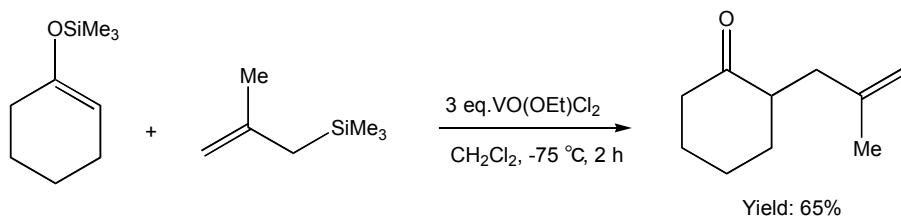
Oxidative coupling reaction



Organometallics, **17**, 5713 (1998)

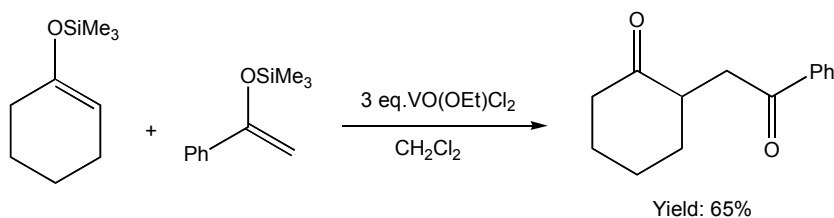
Oxidative transformation reaction of organometallic compound

Formation of C-C bond



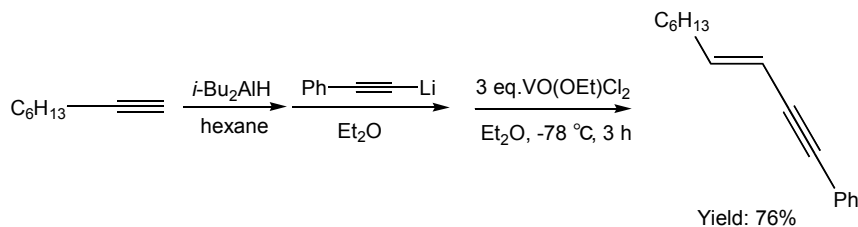
Tetrahedron, **50**, 10207 (1994)

Synthesis of 1,4-diketone



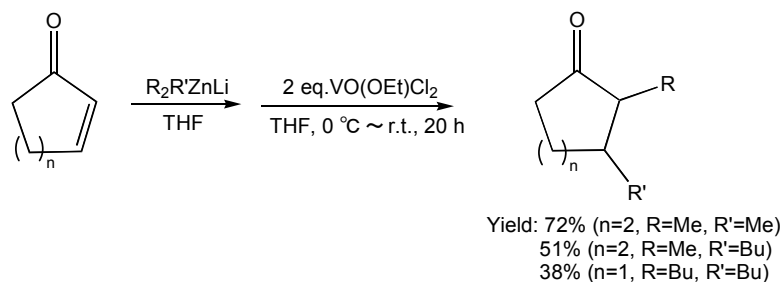
Tetrahedron Lett., **33**, 5823 (1992)

Synthesis of conjugated "Enyne"



J. Am. Chem. Soc., **120**, 5124 (1998)

Vicinal dialkylation reaction



Org. Lett., **2**, 3659 (2000)

■ The contents of this brochure are updated as of March, 2010.

■ Reference

(The manufacturer & engineering department)

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