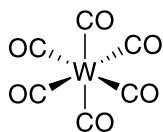


Catalog # 74-2200 Tungsten carbonyl, 99% (<0.3%-Mo)



### Catalysis Applications

Technical Notes:

1. Catalyst for the synthesis of seven-membered ring glycols via endo-selective alkynol cycloisomerization.
2. Catalyst for the [3+2]-cycloaddition reaction with electron-rich alkenes.
3. Used for microwave-assisted synthesis of Weinreb and MAP aryl amides via Pd-Catalyzed Heck Aminocarbonylation.

	<p><b>Tech Note (1) Ref. (1)</b></p>
	<p><b>Tech Note (2) Ref. (2)</b></p>
	<p><b>Tech Note (3) Ref. (3)</b></p>

References:

1. [Org. Lett., 2004, 6, 3877.](#)
2. [J. Am. Chem. Soc. 2005, 127, 2709.](#)
3. [J. Org. Chem. 2011, 76, 978.](#)

### CVD/ALD Applications

Thermal Behavior:

- Melting point: 169-170°C (decomposes)
- Vapor pressure: 0.8 Torr/40°C [8]; 1.2 Torr/67°C

Technical Notes:

1. ALD/CVD precursor and dopant for tungsten thin films deposition and nanocomposites preparation.

Target Deposit	Deposition Technique	Delivery Temperature	Pressure	Co-reactants	Deposition Temperature	Ref.
WO <sub>x</sub>	AACVD	Aerosol	AP	Org. Solvents	300-400°C	1
	LPCVD	80°C	-	O <sub>2</sub>	400°C	2
	ALD	RT	0.75-2.25 Torr	O <sub>3</sub>	150-400°C	3
	ALD	70°C	0.3 Torr	H <sub>2</sub> O	300°C	4
	ALD	80°C	4 Torr	H <sub>2</sub> O <sub>2</sub>	180-200°C	5
	δ-WO <sub>x</sub>	CVD	60-80°C	1.5 Torr	O <sub>2</sub>	850-950°C
WS <sub>2</sub>	ALD	-	1 Torr	H <sub>2</sub> S	175-205°C	7
	PEALD	40°C	-	P <sup>L</sup> H <sub>2</sub> S	350°C	8
	CVD	RT	50 Torr	H <sub>2</sub> S, Et <sub>2</sub> S	600-850°C	9
WN <sub>x</sub>	ALD	RT	1 Torr	NH <sub>3</sub>	180-195°C	10
WCo	CVD	40°C	5 Torr	Co <sub>2</sub> (CO) <sub>8</sub>	90-350°C	11

References:

1. [Phys. Status Solidi C, 2015, 877, 869.](#)
2. [J. Electrochem. Soc. 2015, 162, H579.](#)
3. [Chem. Vap. Deposition 2012, 18, 245.](#)
4. [ECS Trans. 2015, 69, 199.](#)
5. [AIChE J, 2014, 60, 1278.](#)
6. [Mater. Lett., 2020, 258, 126817.](#)
7. [RSC Adv., 2016, 6, 38024.](#)
8. [Appl. Surf. Sci., 2018, 459, 596.](#)
9. [Cryst. Growth Des. 2018, 18, 4357.](#)
10. [Phys. Chem. Chem. Phys., 2015, 17, 17445.](#)
11. [Microelectronic Eng. 2013, 106, 91.](#)



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