

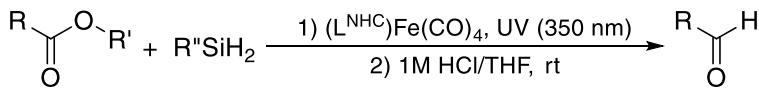
Catalog # 26-2800 Iron pentacarbonyl, 99.5% (99.9+% Fe)

# Fe(CO)<sub>5</sub>

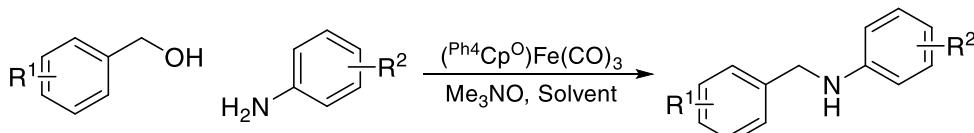
## Catalysis Applications

### Technical Notes:

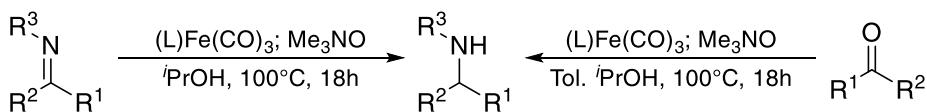
1. Used for the synthesis of iron-NHC catalyst to promote selective reduction of esters to aldehydes
2. Used for the preparation of iron cyclopentadienone complexes to catalyze C–N bond formation between alcohols and amines by iron cyclopentadienone catalyst
3. Used for efficient synthesis of amines via iron-catalyzed C=N transfer hydrogenation and C=O reductive amination in the absence of Lewis acid co-catalysts
4. Used for the preparation of iron catalysts for transfer hydrogenations of carbonyl compounds and transfer dehydrogenations of alcohols
5. Used in the process of iron catalyzed hydroformylation of alkenes under mild conditions
6. CO source in the Pd-catalyzed continuous flow carbonylative cyclization
7. Used in the iron-catalyzed C–H functionalization of simple monosubstituted allenes
8. One of the major precursors for the preparation of iron-based nanocomposites via thermal decomposition



Tech Note (1)  
Ref. (1)



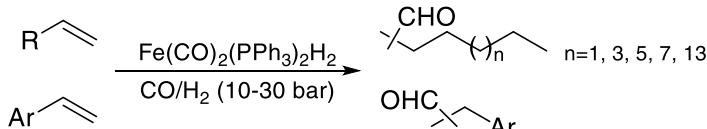
Tech Note (2)  
Ref. (2)



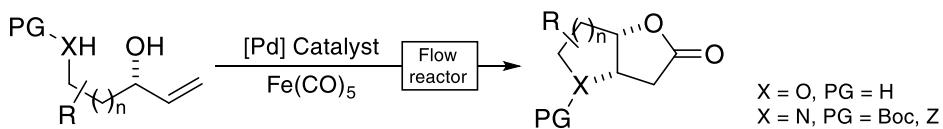
Tech Note (3)  
Ref. (3)



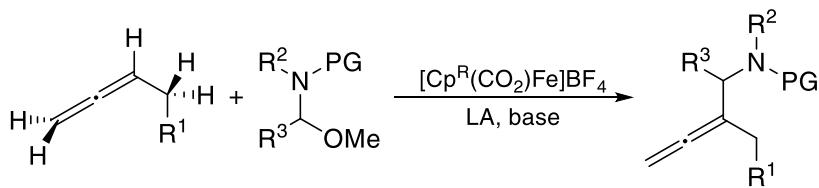
Tech Note (4)  
Ref. (4)



Tech Note (5)  
Ref. (5)



Tech Note (6)  
Ref. (6)



## References:

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## CVD/ALD Applications

## Thermal Behavior:

- Melting point: -20°C
- Boiling point: 103°C
- Vapor pressure: 23 Torr/20°C; 38,7 Torr/30°C; 63 Torr/40°C; 100 Torr/50°C [1]

## Technical Notes:

1. Room temperature CVD precursor for thin iron film deposition
2. Used in for the preparation of vapor grown carbon nanotubes [9-12]

Target Deposit	Deposition Technique	Delivery Temperature	Pressure	Co-reactants	Deposition Temperature	Ref.
$\alpha$ -Fe <sub>2</sub> O <sub>3</sub>	AP-CVD	RT	AP	Si(OEt) <sub>4</sub>	415°C	2
	AP-CVD	RT	AP	-	400°C	3
	PE-CVD	RT	2 mTorr	<sup>PL</sup> O <sub>2</sub>	RT	4
	CVD	0°C	0.1 mTorr	NH <sub>3</sub>	130-225°C	5
Ti: $\alpha$ -Fe <sub>2</sub> O <sub>3</sub>	AP-CVD	RT	AP	TiCl <sub>4</sub>	500°C	6
$\beta$ -FeSi <sub>2</sub>	CVD	RT	0.45 mTorr	SiH <sub>4</sub>	750°C	7
FeSe	CVD	-	-	H <sub>2</sub> Se	260°C	8

## References:

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