

Zinc, dust (stable acc. to UN classification class 4)**APPLICATION GUIDE****Cyclopropanation**

* **Simmons-Smith** *Iodomethylzinc iodide is formed by insertion of zinc into diiodomethane and acts as a cyclopropanation reagent for alkenes. S 1972, 549*

Free Radical Chemistry

* **C-C Bond formation** *Reduction of an alkyl or alkenyl halide gives an intermediate organic radical which can undergo various C-C bond formations (Barbier reaction). If performed in the presence of an electrophile, radical addition often occurs. TL 1988, 29, 5369*

Organometallic Chemistry

* **Nucleophilic addition** *Reformatsky reaction - Zn inserts into α -haloesters producing zinc ester enolates which react with aldehydes and ketones in an Aldol type reaction. Heathcock, C. H In Asymmetric Synthesis Morrison, J. D., Ed.; Academic: London, 1983; p 111.*

* **Zn reagents** *Organozinc halides are often produced by zinc insertion into organic halides. CR 1993, 93, 217*

Reduction

* **1,4-Reduction** *1,4-Reduction of α,β -unsaturated ketones gives the saturated ketone. JOC 1972, 37, 2018*

* **Alkyl halide to alkane** *Alkyl bromides and iodides are reduced to alkanes with Zn/acetic acid. OSC 1973, 5, 149*

* **Alkyne to alkene** *Using either zinc/copper couple or zinc amalgam. Particularly used for the cis reduction of propargylic alcohols. TL 1980, 21, 1069*

* **Carbonyl to methylene** *A wide range of ketones are reduced to a methylene unit with zinc in HCl (Clemmensen reaction). CC 1986, 893*

* **Disulfide to thiol** *Zn in acetic acid is often used. OSC 1963, 4, 695*


* **Ketone to alcohol** *Aryl ketones are reduced to benzylic alcohols. JOC 1969, 34, 3713*

* **Ketone to alkene** *The Clemmensen reduction of ketones to alkenes can be performed with zinc and TMSCl in aprotic solvents. CC 1973, 935*


* **Nitro to amine** *Zn in acetic acid is often used. OSC 1955, 3, 668*

Zinc


dust (stable acc. to UN classification class 4)

Acros Organics	Product code	Packaging	Pack size	Price
	198341000	Plastic bottle	100 g	INR 710
	198340010	Plastic bottle	1 kg	INR 4,700
	198340025	Plastic bottle	2.5 kg	INR 6,030
	198340100	Plastic bottle	10 kg	INR 17,070
R50/53 S60 S61 Moisture sensitive	Zn CAS: 7440-66-6 MFCD00011291	Zn FW: 65.36 mp: 419 °C	bp: 906 °C d: 7.140	

Zinc, 99.9999%
powder


Acros Organics	Product code	Packaging	Pack size	Price
	194500050	Glass bottle	5 g	INR 4,670
	194500500	Glass bottle	50 g	INR 24,230
R15 R17 R50/53 S43A S46 S60 S61 Moisture sensitive Air sensitive	Zn CAS: 7440-66-6 MFCD00011291	Zn FW: 65.36 mp: 420 °C	bp: 907 °C	

Zinc, 99.999%
powder, 40 mesh

Acros Organics	Product code	Packaging	Pack size	Price
	367260100	Glass bottle	10 g	INR 7,290
	367260500	Glass bottle	50 g	INR 24,230
R15 R17 R50/53 S43A S46 S60 S61 Moisture sensitive Air sensitive	Zn CAS: 7440-66-6 MFCD00011291	Zn FW: 65.36 mp: 420 °C	bp: 907 °C	


Zinc

granular, 20 mesh

Acros Organics	Product code	Packaging	Pack size	Price
	222601000	Plastic bottle	100 g	INR 610
	222605000	Plastic bottle	500 g	INR 2,260
R50/53 S60 S61	Zn CAS: 7440-66-6 MFCD00011291	Zn FW: 65.36 mp: 419 °C	bp: 907 °C d: 7.140	


Zinc

granular, 30 mesh

Acros Organics	Product code	Packaging	Pack size	Price
	222611000	Plastic bottle	100 g	INR 1,680
	222615000	Plastic bottle	500 g	INR 4,780
	222610025	Plastic bottle	2.5 kg	INR 16,500
R50/53 S60 S61	Zn CAS: 7440-66-6 MFCD00011291	Zn FW: 65.36 mp: 419 °C	bp: 907 °C d: 7.140	


Zinc, 99+%

mossy

Acros Organics	Product code	Packaging	Pack size	Price
	201455000	Plastic bottle	500 g	INR 2,300
	201450010	Plastic bottle	1 kg	INR 3,590
	201450050	Plastic bottle	5 kg	INR 15,270
R50/53 S60 S61	Zn CAS: 7440-66-6 MFCD00011291	Zn FW: 65.36 mp: 419 °C	bp: 907 °C d: 7.140	

Zinc

5 w/v% susp. in THF, highly active Rieke® meta

Acros Organics	Product code	Packaging	Pack size	Price
	369171000	Glass bottle	100 ml	INR 28,130
R11 R19 R36/37 R51/53 S16 S29 S33 S60 S61 Store below +4°C	Zn CAS: 7440-66-6 MFCD00011291	Zn FW: 65.38 Fp: -17 °C	d: 0.949	

Zinc standard solution

1 mg/ml Zn in 2% HCl

for AAS

Acros Organics	Product code	Packaging	Pack size	Price
	196465000	Plastic bottle	500 ml	INR 4,060
S24/25	MFCD00011291	bp: 100 °C mp: 1 °C	d: 1.010	
Assay 997 to 1003 ug/ml of Zn (2+) in 2% HCl (20°C)				

Zinc acetate, 99%				pure
Acros Organics	Product code	Packaging	Pack size	Price
X _i	370080250	Glass bottle	25 g	INR 3,610
	370081000	Glass bottle	100 g	INR 10,140
R36 S26 S39	C₄H₈O₄Zn	(CH ₃ CO ₂) ₂ Zn		
	CAS: 557-34-6	FW: 183.48		
	MFCD00012454	mp: 83-86 °C		
	Loss on drying	≤1 %		
	Assay	≥98.5 % (on dry substance)		

Zinc acetate dihydrate, 98+%				for analysis ACS
Acros Organics	Product code	Packaging	Pack size	Price
X _n	317215000	Plastic bottle	500 g	INR 910
	317210025	Plastic bottle	2.5 kg	INR 3,890
R22 R36 R50 S26 S29 S39 S57	C₄H₈O₄Zn.2H₂O	(CH ₃ CO ₂) ₂ Zn.2H ₂ O		
	CAS: 5970-45-6	FW: 219.50		
	MFCD00066961	d: 1.840		
	Assay	98.0 to 101.0 %		
	Insoluble matter	≤0.005 %		
	Trace Analysis	Cl ≤ 5 ppm	Pb ≤ 20 ppm	
		SO ₄ ≤ 50 ppm	Mg ≤ 50 ppm	
		Ca ≤ 50 ppm	K ≤ 100 ppm	
		Fe ≤ 5 ppm	Na ≤ 500 ppm	

Zinc acetate dihydrate, 98%				extra pure
Acros Organics	Product code	Packaging	Pack size	Price
X _n	207645000	Plastic bottle	500 g	INR 2,130
	207640010	Plastic bottle	1 kg	INR 3,580
	207640050	Plastic bottle	5 kg	INR 14,130
R22 R36 R50 S26 S29 S39 S57	C₄H₈O₄Zn.2H₂O	(CH ₃ CO ₂) ₂ Zn.2H ₂ O		
	CAS: 5970-45-6	FW: 219.50		
	MFCD00066961	d: 1.840		
	Assay	≥97.5 %		
	Trace Analysis	Fe ≤ 100 ppm	Pb ≤ 50 ppm	

Zinc(II) acetylacetonate				ca. 25% Zn
Acros Organics	Product code	Packaging	Pack size	Price
X _n	388770050	Glass bottle	5 g	INR 1,450
	388771000	Glass bottle	100 g	INR 3,260
	388775000	Glass bottle	500 g	INR 6,130
R22 R36/37/38 S26 S37/39	C₁₀H₁₄O₄Zn			
	CAS: 14024-63-6	FW: 263.59	bp: 129-131 °C (10 mmHg)	
	MFCD00000035	mp: 124-126 °C		

Zinc bacitracin , see Bacitracin, zinc salt on page 157

Zinc bromide				
APPLICATION GUIDE				
Lewis acid catalysts				
* [2+2] Cycloaddition. Ketene silyl acetals with acrylonitrile undergo 2+2 cycloaddition. SC 1989, 19, 1551				
* Diels Alder Cycloaddition. Decreases formation of unwanted impurity when hindered dienes and 1,4-benzoquinones reacted under pressure to form tricyclic diterpenes. JOC 1989, 54, 5712				


Zinc bromide, 99.999%				extra pure
Acros Organics	Product code	Packaging	Pack size	Price
C _i N	212770025	Glass bottle	2.5 g	INR 2,030
	212770100	Glass bottle	10 g	INR 4,980
	212770500	Glass bottle	50 g	INR 14,960
R34 R50 S26 S29 S36/37/39 S45 S61 Hygroscopic	Br₂Zn	ZnBr ₂		
	CAS: 7699-45-8	FW: 225.19	bp: 697 °C	
	MFCD00011294	mp: 394 °C	d: 4.220	

Zinc bromide, 98+%				extra pure
Acros Organics	Product code	Packaging	Pack size	Price
C _i N	202101000	Glass bottle	100 g	INR 3,530
	202105000	Glass bottle	500 g	INR 9,490
R34 R50 S26 S29 S36/37/39 S45 S61 Hygroscopic	Br₂Zn	ZnBr ₂		
	CAS: 7699-45-8	FW: 225.19	bp: 697 °C	
	MFCD00011294	mp: 394 °C	d: 4.220	
	Assay	≥98.0 % (ZnBr ₂)		
	Trace Analysis	Ba ≤ 10 ppm	Mg ≤ 100 ppm	
		Ca ≤ 100 ppm	Na ≤ 100 ppm	
		Fe ≤ 10 ppm	Pb ≤ 50 ppm	
		K ≤ 100 ppm	SO ₄ ≤ 100 ppm	


Zinc carbonate hydroxide, 58%				extra pure
powder, (53% Zn min.)				
Acros Organics	Product code	Packaging	Pack size	Price
S24/25 Hygroscopic	222650010	Glass bottle	1 kg	INR 4,660
	CO₂Zn.3/2H₂O.Zn	3Zn(OH) ₂ .2ZnCO ₃		
	CAS: 5263-02-5	FW: 549.01		
	MFCD00011519	d: 4.390		
	Assay	≥53 % (Zn)		
	Trace Analysis	Cl ≤ 0.3%	SO ₄ ≤ 1.5%	

Zinc chloride			
APPLICATION GUIDE			
Aromatic substitutions			
* Hoesch acylation. Catalyst for acylation of reactive aromatics with nitriles. OSC 1943, 2, 522			
Lewis acid catalysts			
* Diels Alder Cycloaddition. In addition to improving the rate of Diels-Alder reactions, enhanced control over regioselectivity and stereochemistry may be observed. CC 1988, 1176; TL 1993, (34), 423			
* Friedel Crafts. Lewis acid catalyst for Friedel-Crafts acylation and alkylation. OSC 1955, 3, 761; T 1991, 47, 4775			
* Knoevenagel condensation. TL 1991, 32, 5821			
Organometallic Chemistry			
* Preparation of zinc reagents. Reacts with sodium borohydride to give zinc borohydride which is used in situ as versatile, non-basic, selective reducing agent. SL 1993, 885			
* Preparation of zinc reagents. Transmetalation of organolithium, organomagnesium and organocopper reagents. COS 1991, 1, Chapter 1.7			


Zinc chloride, 97+% for analysis ACS

Acros Organics	Product code	Packaging	Pack size	Price
 R22 R34 R50/53 S26 S36/37/39 S45 S60 S61 Hygroscopic	424592500	Plastic bottle	250 g	INR 3,810
	424595000	Plastic bottle	500 g	INR 6,920
	424590025	Plastic bottle	2.5 kg	INR 22,110
	Cl₂Zn	ZnCl₂		
	CAS: 7646-85-7 MFCD00011295	FW: 136.29 mp: 293 °C	bp: 732 °C	
	Assay.....	≥97.0 %		
	Insoluble matter.....	≤0.005 %		
	Trace Analysis.....	NO ₃ ≤ 30 ppm Mg ≤ 100 ppm SO ₄ ≤ 100 ppm K ≤ 200 ppm NH ₄ ≤ 50 ppm Na ≤ 500 ppm Pb ≤ 50 ppm Fe ≤ 10 ppm Ca ≤ 600 ppm		


Zinc chloride, 98.5% for analysis

Acros Organics	Product code	Packaging	Pack size	Price
 R22 R34 R50/53 S26 S36/37/39 S45 S60 S61 Hygroscopic	198945000	Plastic bottle	500 g	INR 6,920
	198940025	Plastic bottle	2.5 kg	INR 22,110
	Cl₂Zn	ZnCl₂		
	CAS: 7646-85-7 MFCD00011295	FW: 136.29 mp: 293 °C	bp: 732 °C	
	Assay.....	≥98.0 %		
	Insoluble matter.....	≤0.005 %		
	Trace Analysis.....	NO ₃ ≤ 30 ppm K ≤ 200 ppm SO ₄ ≤ 20 ppm Mg ≤ 100 ppm Ca ≤ 10 ppm Na ≤ 50 ppm Cd ≤ 5 ppm NH ₄ ≤ 50 ppm Cu ≤ 10 ppm Pb ≤ 10 ppm Fe ≤ 5 ppm		


Zinc chloride, 99.99% extra pure

Acros Organics	Product code	Packaging	Pack size	Price
 R22 R34 R50/53 S26 S36/37/39 S45 S60 S61 Hygroscopic	318170100	Glass bottle	10 g	INR 5,490
	318170500	Glass bottle	50 g	INR 16,420
	Cl₂Zn	ZnCl₂		
	CAS: 7646-85-7 MFCD00011295	FW: 136.29 mp: 293 °C	bp: 732 °C	

Zinc chloride anhydrous


Acros Organics	Product code	Packaging	Pack size	Price
 R22 R34 R50/53 S26 S36/37/39 S45 S60 S61 Hygroscopic	380130050		5 g	INR 3,780
	380130250		25 g	INR 13,230
	Cl₂Zn	ZnCl₂		
	CAS: 7646-85-7 MFCD00011295	FW: 136.29 mp: 293 °C	bp: 732 °C	

Zinc chloride, 98+% extra pure

Acros Organics	Product code	Packaging	Pack size	Price
 R22 R34 R50/53 S26 S36/37/39 S45 S60 S61 Hygroscopic	196840050	Glass bottle	5 g	INR 1,160
	196840010	Glass bottle	1 kg	INR 4,690
	196840025	Glass bottle	2.5 kg	INR 9,590
	Cl₂Zn	ZnCl₂		
	CAS: 7646-85-7 MFCD00011295	FW: 136.29 mp: 293 °C	bp: 732 °C	
	Assay.....	≥98.0 %		
	Trace Analysis.....	Fe ≤ 10 ppm Cu ≤ 1 ppm Pb ≤ 10 ppm Mn ≤ 30 ppm Cd ≤ 10 ppm		


Zinc chloride

2M solution in 2-methyltetrahydrofuran, AcroSeal®

Acros Organics	Product code	Packaging	Pack size	Price
 R11 R19 R22 R34 R50/53 S16 S26 S33 S36/ 37/39 S45 S60 S61	428561000	AcroSeal	100 ml	INR 8,920
	428568000	AcroSeal	800 ml	INR 39,940
	Cl₂Zn	ZnCl₂		
	CAS: 7646-85-7 MFCD00011295	FW: 136.29 Fp: -11 °C	d: 1.070	

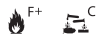
Zinc chloride

0.7M solution in THF, AcroSeal®

Acros Organics	Product code	Packaging	Pack size	Price
 R11 R19 R34 R51/53 S16 S18 S26 S36/ 37/39 S45 S61	389451000	AcroSeal	100 ml	INR 6,520
	389458000	AcroSeal	800 ml	INR 25,520
	Cl₂Zn	ZnCl₂		
	CAS: 7646-85-7 MFCD00011295	FW: 136.30 bp: 66 °C	Fp: -22 °C d: 0.980	

Zinc chloride

1.0M solution in diethyl ether, AcroSeal®

Acros Organics	Product code	Packaging	Pack size	Price
 R12 R19 R22 R34 R51/53 R66 R67 S16 S28A S29 S33 S45 S61 S7/8 S9 Hygroscopic Light sensitive Air sensitive Store below +4°C	370051000	AcroSeal	100 ml	INR 1,920
	370058000	AcroSeal	800 ml	INR 7,320
	Cl₂Zn	ZnCl₂		
	CAS: 7646-85-7 MFCD00011295	FW: 136.29 Fp: -21 °C	d: 0.840	

Zinc chloride tetrahydrofuran complex, 97%

Acros Organics	Product code	Packaging	Pack size	Price
	390210100	Glass bottle	10 g	INR 4,430
R11 R19 R22 R34 S16 S26 S36/37/39 S45 Hygroscopic	C₆H₁₆Cl₂O₂Zn CAS: 24640-76-4	FW: 280.50		

Zinc copper couple

APPLICATION GUIDE

Cyclopropanation

- * From 1,3-dibromides *JOC* 1975, 53, 1693
- * Simmons-Smith Stereoselective when applied to allylic alcohols. *JCS(P1)* 1978, 110
- * Simmons-Smith Used in combination with diiodomethane. *JACS* 1959, 81, 4256

Organometallic Chemistry

- * McMurray Coupling *JOC* 1989, 54, 3748
- * Reformatsky Reaction Gives better yields than zinc metal. *S* 1977, 698
- * Zn reagents Preparation of zinc homoenolates which couple with acyl chlorides, vinyl iodides, or vinyl triflates in the presence of Pd(PPh₃)₄. *OR* 1988, 67, 98

Reduction

- * Alkene to alkane Only works for electron deficient alkenes in refluxing MeOH. *JCS(P1)* 1983, 1219
- * Alkene to alkane *JOC* 1977, 42, 212
- * Alkyne to alkene Produces Z-alkenes in refluxing MeOH. *S* 1981, 400
- * Epoxide to alkene *JCS(P1)* 1975, 2118
- * Oxime to amine More effective than aluminium amalgam. *SL* 1992, 708

Zinc copper couple

Acros Organics	Product code	Packaging	Pack size	Price
	271440250	Glass bottle	25 g	INR 1,680
R11 R36/37/38 S16 S26 S37/39 Moisture sensitive	271441000	Glass bottle	100 g	INR 4,110
	CAS: 53801-63-1	ZnCu MFCD00084851	mp: 500 °C	

Zinc cyanide, 98%

pure

Acros Organics	Product code	Packaging	Pack size	Price
	368070050	Glass bottle	5 g	INR 730
R26/27/28 R32 R50/53 S7 S28A S29 S45 S60 S61	368072500	Plastic bottle	250 g	INR 830
	368070010	Plastic bottle	1 kg	INR 3,330
	C ₂ N ₂ Zn	Zn(CN) ₂		
	CAS: 557-21-1	FW: 117.43		
	MFCD00011292	mp: 800 °C		
	Assay.....	≥97.5 %		

Zinc cyclohexanebutyrate dihydrate

Acros Organics	Product code	Packaging	Pack size	Price
	422735000	Glass bottle	500 mg	INR 2,310
S24/25	C₂₀H₃₄O₄Zn.2H₂O	(C ₆ H ₁₁ (CH ₂) ₃ COO) ₂ Zn.2H ₂ O		
	CAS: 38582-18-2	MFCD00150338	FW: 439.90	

Zinc fluoride, 98%

Acros Organics	Product code	Packaging	Pack size	Price
	363910250	Plastic bottle	25 g	INR 970
R22 R36/37/38 S26 S37/39 Hygroscopic	363912500	Plastic bottle	250 g	INR 7,520
	F₂Zn	ZnF ₂		
	CAS: 7783-49-5	FW: 103.38	bp: 1500 °C	
	MFCD00011298	mp: 872-910 °C		

Zinc gluconate hydrate, see D-Gluconic acid, zinc salt hydrate on page 1105

Zinchrome R, see Calcon® on page 469

Zinc iodide

APPLICATION GUIDE

Deprotecting Group Chemistry

- * Deprotection of ethers Methyl and benzyl ethers may be deprotected using a mixture of (Phenylthio)trimethylsilane and ZnI₂. *TL* 1980, 21, 2305

Lewis acid catalysts

- * Aldol condensation *TL* 1985, 26, 5777
- * Diels Alder Cycloaddition ZnI₂ has been used as a catalyst in Diels-Alder cycloadditions. *TL* 1982, 23, 5239
- * Nucleophilic substitution The treatment of epoxides with ZnI₂ and cyanotrimethylsilane results in C-N bond formation with ring opening. *TL* 1984, 25, 3259

Organometallic Chemistry

- * Organozinc The transmetalation of organolithium, -magnesium or -copper species using ZnI₂ produces organozinc compounds. *COS* 1991, 1, Chapter 1.7

Reduction

- * Carbonyl to alkane A carbonyl is converted to the corresponding alkane by treatment with sodium cyanoborohydride and ZnI₂ in dichloromethane. *JOC* 1986, 51, 3038

Zinc iodide, 99.999%

extra pure

Acros Organics	Product code	Packaging	Pack size	Price
	212760050	Glass bottle	5 g	INR 2,850
R34 S26 S36/37/39 S45 Hygroscopic Light sensitive Air sensitive	212760250	Glass bottle	25 g	INR 8,100
	I₂Zn	ZnI ₂		
	CAS: 10139-47-6	FW: 319.19	d: 4.740	
	MFCD00011299	mp: 446 °C		

Zinc iodide, 98+%

pure

Acros Organics	Product code	Packaging	Pack size	Price
	208060500	Glass bottle	50 g	INR 850
R34 S26 S36/37/39 S45 Hygroscopic Light sensitive Air sensitive	208062500	Glass bottle	250 g	INR 3,020
	208060010	Glass bottle	1 kg	INR 9,880
	I₂Zn	ZnI ₂		
	CAS: 10139-47-6	FW: 319.19	d: 4.740	
	MFCD00011299	mp: 446 °C		
	Assay.....	≥98.0 %		

Zinc nitrate hexahydrate, 98%

extra pure

Acros Organics	Product code	Packaging	Pack size	Price
	211660050	Glass bottle	5 g	INR 570
R8 R22 R38 S17 S24/25 Hygroscopic	211662500	Plastic bottle	250 g	INR 700
	211660010	Plastic bottle	1 kg	INR 1,980
	N₂O₆Zn.6H₂O	Zn(NO ₃) ₂ .6H ₂ O		
	CAS: 10196-18-6	FW: 297.46	d: 2.060	
	MFCD00149889	mp: 36 °C		
	Assay.....	≥97.5 %		
	Trace Analysis.....	Fe ≤ 20 ppm	Cl ≤ 100 ppm	
		Pb ≤ 100 ppm		

Zinc oxide**APPLICATION GUIDE****Interconversion of functional groups**

* **Carboxylic acid to ester.** Carboxylic acids react with ZnO to form zinc salts that react with tertiary alkyl halides to give esters. Particularly useful for forming t-butyl esters. T 1984, 40, 1623

Organometallic Chemistry

* **Enolates.** Zinc oxide proved an effective catalyst in intramolecular aldol reactions. TL 1975, 533

Organophosphorous intermediates

* **Horner-Emmons.** Zinc oxide catalyst. T 1987, 43, 537


* **Wittig.** Zinc oxide catalyst. T 1987, 43, 537

Protecting Group Chemistry


* **Protection of carboxylic acids.** Carboxylic acids react with ZnO to form zinc salts that react with tertiary alkyl halides to give esters. Particularly useful for forming t-butyl esters. T 1984, 40, 1623

Zinc oxide


reagent ACS

Acros Organics	Product code	Packaging	Pack size	Price
	422740050	Glass bottle	5 g	INR 560
	422741000	Plastic bottle	100 g	INR 1,270
	422745000	Plastic bottle	500 g	INR 1,500
	422740010	Plastic bottle	1 kg	INR 2,350
R50/53 S60 S61	OZn	ZnO		
	CAS: 1314-13-2 MFCD00011300	FW: 81.38 mp: 1975 °C	d: 5.600	


Zinc oxide, 99.999%

Acros Organics	Product code	Packaging	Pack size	Price
	315790250	Glass bottle	25 g	INR 6,630
	315791000	Glass bottle	100 g	INR 17,730
R50/53 S60 S61	OZn	ZnO		
	CAS: 1314-13-2 MFCD00011300	FW: 81.38 mp: 1975 °C	d: 5.600	

Zinc oxide, 99.5+%

Acros Organics	Product code	Packaging	Pack size	Price
	194890010	Plastic bottle	1 kg	INR 1,680
	OZn	ZnO		
R50/53 S60 S61	CAS: 1314-13-2 MFCD00011300	FW: 81.38 mp: 1975 °C	d: 5.600	


Zinc peroxide, 55%

Acros Organics	Product code	Packaging	Pack size	Price
	350421000	Glass bottle	100 g	INR 3,050
	O₂Zn	ZnO ₂		
R9 S17	CAS: 1314-22-3 MFCD00137469	FW: 97.39		

Zinc phthalocyanine, 96%

Acros Organics	Product code	Packaging	Pack size	Price
	422750050	Glass bottle	5 g	INR 2,370
	422750250	Glass bottle	25 g	INR 7,580
S24/25	C₃₂H₁₆N₈Zn			
	CAS: 14320-04-8 MFCD00041955	FW: 577.91		


Zinc selenide, 99.99%

Acros Organics	Product code	Packaging	Pack size	Price
	223640100	Glass bottle	10 g	INR 3,170
	223640250	Glass bottle	25 g	INR 7,580
R23/25 R33 R50/53 S20/21 S28A S45 S60 S61 Moisture sensitive Air sensitive	SeZn	ZnSe		
	CAS: 1315-09-9 MFCD00011296	FW: 144.34 mp: >1100 °C		

Zinc stearate


Acros Organics	Product code	Packaging	Pack size	Price
	263780010	Plastic bottle	1 kg	INR 1,550
	263780050	Plastic bottle	5 kg	INR 5,360
	263780200	Fiber drum	20 kg	INR 18,230
S24/25	C₃₆H₇₀O₄Zn	[CH ₃ (CH ₂) ₁₆ CO ₂] ₂ Zn		
	CAS: 557-05-1 MFCD00013031	FW: 632.34 mp: 118-128 °C	Fp: >100 °C	

Zinc sulfate monohydrate, 99%

Acros Organics	Product code	Packaging	Pack size	Price
	389802500	Plastic bottle	250 g	INR 1,040
	389800010	Plastic bottle	1 kg	INR 1,850
	389800050	Plastic bottle	5 kg	INR 5,860
R22 R41 R50/53 S22 S26 S39 S46 S60 S61 Hygroscopic	O₄SZn.H₂O	ZnSO ₄ .H ₂ O		
	CAS: 7446-19-7 MFCD000149893	FW: 179.47		
	Assay	≥98.5 %		

Zinc sulfate heptahydrate, 99%

for analysis ACS

Acros Organics	Product code	Packaging	Pack size	Price
	424605000	Plastic bottle	500 g	INR 2,890
	424600010	Plastic bottle	1 kg	INR 4,550
	424600030	Plastic bottle	3 kg	INR 9,660
	424600100	Plastic drum	10 kg	INR 24,330
R22 R41 R50/53 S22 S26 S39 S46 S60 S61	O₄SZn.7H₂O	ZnSO ₄ .7H ₂ O		
	CAS: 7446-20-0 MFCD00149894	FW: 287.53 mp: 100 °C		
	Assay	99.0 to 103.0 %		
	Insoluble matter	≤0.01 %		
	Trace Analysis	Cl ≤ 5 ppm NO ₃ ≤ 20 ppm NH ₄ ≤ 10 ppm Ca ≤ 50 ppm Fe ≤ 10 ppm	Pb ≤ 30 ppm Mg ≤ 50 ppm Mn ≤ 3 ppm K ≤ 100 ppm Na ≤ 500 ppm	

Zinc sulfate heptahydrate, 99.5% for analysis

Acros Organics	Product code	Packaging	Pack size	Price
 R22 R41 R50/53 S22 S26 S39 S46 S60 S61	205982500	Plastic bottle	250 g	INR 910
	205980010	Plastic bottle	1 kg	INR 2,300
	205980050	Plastic bottle	5 kg	INR 9,090
	O₅SZn.7H₂O	ZnSO ₄ .7H ₂ O		
	CAS: 7446-20-0	FW: 287.53		
	MFCDD00149894	mp: 100 °C		
	Assay.....	≥99.5 %		
	Trace Analysis	Cl ≤ 5 ppm	Mn ≤ 3 ppm	
		Pb ≤ 10 ppm	Na ≤ 10 ppm	
		Fe ≤ 10 ppm	K ≤ 10 ppm	
		As ≤ 1 ppm		

Zinc sulfide

99.99%, < 10 microns

Acros Organics	Product code	Packaging	Pack size	Price
R31 S50A	223650250	Glass bottle	25 g	INR 1,260
	223651000	Glass bottle	100 g	INR 3,580
	223655000	Glass bottle	500 g	INR 12,160
	SZn	ZnS		
	CAS: 1314-98-3	MFCDD00011301	FW: 97.44	

Zinc triflate, see Zinc trifluoromethanesulfonate on page 2152

Zinc trifluoromethanesulfonate
APPLICATION GUIDE
Lewis acid catalysts

* **Addition to carbonyls** *Enantioselective addition of terminal acetylenes to aldehydes. JACS 2001, 123, 9687*

Protecting Group Chemistry

* **Protection of carbonyls** *Mild acid catalyst capable of promoting thioacetal protection of acid sensitive aldehydes and ketones. SC 1989, 19, 2383*

Zinc trifluoromethanesulfonate, 98%

Acros Organics	Product code	Packaging	Pack size	Price
 R34 S26 S36/37/39 S45 Hygroscopic	317090100	Glass bottle	10 g	INR 2,740
	317090500	Glass bottle	50 g	INR 9,630
	C₂F₆O₆S₂Zn	(CF ₃ SO ₃) ₂ Zn		
	CAS: 54010-75-2	MFCDD00013229	FW: 363.51	

Zirconium(IV) chloride, anhydrous
APPLICATION GUIDE
Lewis acid catalysts

* **Aldol condensation** *Lewis acid catalysis for Aldol coupling reactions e.g. between Allyltrimethylsilane and methyl β-formylcarboxylate. CB 1989, 122, 2165*

* **Cycloaddition** *Lewis acid catalyst for e2+2! cycloadditions, e.g. reaction of ethyl propiolate and TMS enol ethers. TL 1992, 33, 3879*

* **Diels Alder Cycloaddition** *Lewis acid catalyst used for Diels Alder reactions. TL 1984, 25, 2191*

Organometallic Chemistry

* **Hydrometallation** *Catalyses the addition of LiAlH₄ to alkenes and alkynes. ZrCl₄, unlike TiCl₄ does not cause deoxygenation of the hydroxy function of allylic alcohols. JOM 1976, 122, C25*

Protecting Group Chemistry

* **Protection of carboxylic acids** *Chloromethyl ethers are formed from acid chlorides and trioxane or paraformaldehyde in the presence of ZrCl₄. TL 2002, 43, 6317*

Rearrangements

* **Fries** *ZrCl₄ is a superior catalyst for the Fries rearrangement of aryl acetates. TL 1996, 37, 7659*

Zirconium(IV) chloride, 98%

anhydrous

Acros Organics	Product code	Packaging	Pack size	Price
 R14 R22 R34 S8 S26 S36/37/39 S45 Hygroscopic	206410050	Glass bottle	5 g	INR 2,560
	206411000	Glass bottle	100 g	INR 3,650
	206415000	Glass bottle	500 g	INR 15,660
	Cl₄Zr	ZrCl ₄		
	CAS: 10026-11-6	FW: 233.03		
	MFCDD00011306	mp: 437 °C (S)		

Zirconium(IV) ethoxide, 99%

Acros Organics	Product code	Packaging	Pack size	Price
 R36/37/38 S26 S37/39 Moisture sensitive	335450050	Glass bottle	5 g	INR 1,680
	335450250	Glass bottle	25 g	INR 7,140
	C₈H₂₀O₄Zr	Zr(OC ₂ H ₅) ₄		
	CAS: 18267-08-8	FW: 271.46		
	MFCDD00015654	mp: 200 °C		

Zirconium fluoride, 99.5%

Acros Organics	Product code	Packaging	Pack size	Price
 R20/21/22 R34 S26 S36/37/39 S45 Hygroscopic	299790250	Plastic bottle	25 g	INR 6,590
	299791000	Plastic bottle	100 g	INR 14,040
	F₄Zr	ZrF ₄		
	CAS: 7783-64-4	FW: 167.21	bp: 905 °C	
	MFCDD00011307	mp: 640 °C		

Zirconium(IV) oxide, 98.5%

Acros Organics	Product code	Packaging	Pack size	Price
 R36/37 S26 S39	190522500	Glass bottle	250 g	INR 3,440
	190520010	Glass bottle	1 kg	INR 9,750
	O₂Zr	ZrO ₂		
	CAS: 1314-23-4	FW: 123.22	bp: 4300 °C	
	MFCDD00011310	mp: 2700 °C	d: 5.600	

Zirconium(IV) propoxide, ca. 70%

solution in propanol, AcroSeal®


Acros Organics	Product code	Packaging	Pack size	Price
 R10 R41 R67 S7 S16 S24 S26 S29 Moisture sensitive	427931000	AcroSeal	100 ml	INR 2,180
	427938000	AcroSeal	800 ml	INR 9,720
	C₁₂H₂₆O₄Zr	Zr(OCH ₂ CH ₂ CH ₃) ₄		
	CAS: 23519-77-9	FW: 327.57	d: 1.044	
	MFCDD00015307	Fp: 28 °C		

Zirconium silicate, 98%

-325 mesh


Acros Organics	Product code	Packaging	Pack size	Price
S24/25	258990100	Glass bottle	10 g	INR 920
	258991000	Glass bottle	100 g	INR 1,300
	258990010	Glass bottle	1 kg	INR 6,400
	SiO₄Zr	ZrSiO ₄		
	CAS: 10101-52-7	FW: 183.30		
	MFCDD00085353	mp: 2550 °C		

Zirconium sulfate tetrahydrate, 99.99%

Acros Organics	Product code	Packaging	Pack size	Price
	194550250	Glass bottle	25 g	INR 16,300
R36/37/38 S26 S37/39	O₆S₂Zr.4H₂O	Zr(SO ₄) ₂ .4H ₂ O		
	CAS: 7446-31-3	FW: 355.39	d: 3.220	
	MFCDD00149267	mp: 410 °C (D)		

Zirconium tetrachloride , see Zirconium(IV) chloride, anhydrous on page 2152

Zirconium tetrakis(2,2,6,6-tetramethyl-3,5-heptanedionate) , 99%


Acros Organics	Product code	Packaging	Pack size	Price
	380420010	Glass bottle	1 g	INR 2,340
	380420050	Glass bottle	5 g	INR 6,660
	380420250	Glass bottle	25 g	INR 22,110
R36/37/38 S26 S37/39	C₄₄H₇₆O₉Zr			
	CAS: 18865-74-2	FW: 824.30		
	MFCDD00145380	mp: 318-320 °C		

Zirconocene chloride hydride , see Bis(cyclopentadienyl)zirconium chloride hydride on page 227


Zirconocene dichloride , see Bis(cyclopentadienyl)zirconium dichloride on page 227

Zirconone dihydride , see Bis(cyclopentadienyl)zirconium dihydride on page 227

Zirconyl chloride octahydrate, 98+%

Acros Organics	Product code	Packaging	Pack size	Price
	208370050	Glass bottle	5 g	INR 1,490
	208371000	Glass bottle	100 g	INR 7,550
	208375000	Glass bottle	500 g	INR 23,710
R22 R34 S26 S36/37/39 S45 Hygroscopic	Cl₂OZr.8H₂O	ZrOCl ₂ .8H ₂ O		
	CAS: 13520-92-8	FW: 322.25		
	MFCDD00149898	d: 1.910		

Zirconyl chloride hydrate, 99.99%


Acros Organics	Product code	Packaging	Pack size	Price
	388470100	Glass bottle	10 g	INR 5,070
	388470500	Glass bottle	50 g	INR 13,190
R22 R34 S26 S36/37/39 S45 Hygroscopic	ClOZr.xH₂O	Zr(Cl) ₂ O.xH ₂ O		
	CAS: 15461-27-5	FW: 178.13		
	MFCDD00149897	mp: 400 °C (D)		

Zirconyl(IV) nitrate hydrate
APPLICATION GUIDE
Oxidation

* Aromatisation Dihydropyridines are oxidised to pyridines. Conversion of pyrazolines to pyrazoles are also feasible. S. 2003, 8, 1267

Zirconyl(IV) nitrate hydrate, 99.5%

contains up to 4% Hf

Acros Organics	Product code	Packaging	Pack size	Price
	222630050	Glass bottle	5 g	INR 1,890
	222631000	Glass bottle	100 g	INR 6,240
	222635000	Glass bottle	500 g	INR 20,780
R8 R34 S17 S25 S36/37/39 S45 Hygroscopic	N₂O₇Zr.xH₂O	Zr(NO ₃) ₂ .xH ₂ O		
	CAS: 14985-18-3	MFCDD00149896	FW: 231.23	

Zoxazolamine , see 2-Amino-5-chlorobenzoxazole on page 71