

Chemical Name	Common Name	Type	Authorized Equipment	Special Considerations
(TRIDECAFLUORO-1,1,2,2-TETRAHYDROOCTYL)TRICHLOROSILANE	Trichlor	Solvent	Fume hoods	
1-Methyl-2-Pyrrolidinone		Solvent		
A-174 Silane	Parylene Curing Agent	Adhesion Agent	Parylene Coater	
Acetic Acid	Acetic Acid	Acid	-	PPE Required
Acetic Acid, Glacial	CH3COOH	Electroplater Titration Chemical	Electroplaters	PPE Required and ventilation
Acetone	Acetone	Solvent	-	Degrades nitrile gloves
Acrylic sheet	Acrylic	Substrate	EBE	
Alumel	Alumel	Deposition Source	EBE	
Aluminum	Al	Deposition Source	EBE, DC Sputter	
Aluminum / Silicon / Copper	Al / Si / Cu	Deposition Source	Clustex	
Aluminum / Copper	Al / Cu	Deposition Source	Clustex	
Aluminum Etchant	Aluminum Etchant	Etchant	Light PPE	
Aluminum Nitride	Aluminum Nitride	Deposition Source	RF Sputter	
Aluminum Oxide	Aluminum Oxide, Al2O3	Deposition Source	EBE, RF Sputter	
Ammonium Hydroxide	NH4OH	Cleaning agent	Fume hoods	
AR 600-546	AR 600-547	EBL Developer	-	
AR 600-71	AR 600-72	EBL Stripper	-	
AR-P 6200.09	EBL Resist	EBL Resist	-	
AZ 10XT 520CP photoresist	AZ 10XT resust	Resist	Laurell, Bidtec spinners	
AZ 300 MIF	AZ 300 MIF	Developer	-	
AZ 400K Developer	AZ 400K Developer	Developer	-	
AZ 400T Stripper	400T	Stripper	-	
AZ 5214 EIR	AZ 5214 EIR	Developer	-	
AZ 726 MIF	AZ 726 MIF	Developer	-	
AZ Developer 1:1	AZ Developer 1:2	Developer	-	
AZ nLOF 2020 Photoresist	AZ nLOF	Negative resist	Laurell, Bidtec spinners	
AZ P4620 Photoresist	AZ P4620	Resist	Laurell, Bidtec spinners	
AZ P4629 Photoresist	AZ P4629 Photoresist	Resist	-	
Barium Fluoride	BaF2	Deposition Source	EBE, RF sputter	
Barium Strontium Titanate	BST	Deposition Source	RF Sputter	
Bis(diethylamino)silane	BDEAS	Precursor	Plasma CN1 ALD	
Buffered Oxide Etch 7:1 Mixture	BOE	Acid	Web bench	PPE Required
C Thinner	C Thinner	Solvent	-	PPE Required
Cerium Oxide	CeO2	Depost	EBE	
Chlorobenzene	Chlorobenzene	Solvent	Only as a solvent in resist materials	
Chloroform	Chloroform	Solvent	Laurell spinner	
Chromel	Chromel	Deposition Source	EBE	
Chromium	Cr, Chrome	Deposition Source	EBE, DC Sputter	
Chromium Etchant	Chromium Etchant	Etchant	-	PPE Required
Chromium Oxide	Cr2O3	Deposition Source	Clustex	
CNT (1-2%) in PVDF composite substrate		Substrate	DC Sputter	
Cobalt	Co	Deposition Source	DC Sputter	
Copper	Cu	Deposition Source	EBE, DC Sputter	
Copper Etchant	Copper Etchant	Etchant	-	PPE Required
Copper Hydroxide	Cu(OH)2	Powder	MTI Annealing	
Copper Oxide	Cu2O	Deposition Source	Clustex	
Cu D3000 ACCELERATOR	1.8% CuSO4 · 5H2O	Electroplater Main Bath Chemical	Electroplaters	PPE Required and ventilation
Cu D3000 LEVELER	0.1% CuSO4 · 5H2O	Electroplater Main Bath Chemical	Electroplaters	PPE Required and ventilation
Cu D3000 SUPPRESSOR	1% CuSO4 · 5H2O	Electroplater Main Bath Chemical	Electroplaters	PPE Required and ventilation
Cu ELECTROLYTE 50-20	22% H2SO4, 17% CuSO4 · 5H2O	Electroplater Main Bath Chemical	Electroplaters	PPE Required and ventilation
CU ELECTROLYTE A	96% H2SO4	Electroplater Main Bath Chemical	Electroplaters	PPE Required and ventilation
Cu ELECTROLYTE B	37% HCl	Electroplater Main Bath Chemical	Electroplaters	PPE Required and ventilation
Cu ELECTROLYTE C	23% CuSO4 · 5H2O	Electroplater Main Bath Chemical	Electroplaters	PPE Required and ventilation
Cyclopentanone 99%		Chemical		PPE Careful disposal
DisChem DisCharge H2O	DisCharge H2O	Coating Agent	Spin coaters	
DPX-C	Parylene Dimer	Coating Agent	Parylene Coater	
EBR 10A	EBR 10A	PR removal agent	Wet bench	
EBR PG	EBR PG	PR removal agent		
Erbium	Er	Deposition Source	EBE, DC Sputter	
Ethyl Lactate		Non-toxic chemicals		
Ferritin		Coating on SiO2/Si wafers	EBE	
Fomblin oil 45	Fomblin	Oil for vacuum pumps	Vacuum pumps	
Gallium Nitride	GaN	Deposition Source	EBE, RF Sputter	
Germanium	Ge	Deposition Source	EBE, RF Sputter	
Glycerol	Glycerol	Alcohol	Web bench	
Gold	Ag	Deposition Source	EBE	
Gold Etchant	Gold Etchant	Etchant	-	PPE Required
Graphite	C, Carbon	Substrate	PECVD, RIE	
Hafnium Nitride	HfN	Deposition Source	Clustex	
Hafnium Oxide	HfO2	Deposition Source	Clustex, RF sputter	
Hexamethyldisilazane	HMDS	Resist adhesion promoter	Mask aligners	
Hexane	Hexane	Solvent	Web bench	
Hydrochloric Acid	HCl	Acid	-	PPE Required
Hydrofluoric Acid 49%	HF	Acid	-	PPE Required
Hydrogen Peroxide 30%	Peroxide	Peroxide	-	
Immersion H2O		UpNano Resin	UpNano	
Immersion Oil		UpNano Resin	UpNano	
Indium	In	Deposition Source	EBE	
Indium Antimonide	InSb	Deposition Source	RF Sputter	
Indium Oxide / Tin Oxide	IO / TO	Deposition Source	Clustex	
Indium Tin Oxide	ITO	Deposition Source	RF Sputter	
IP-Dip Photoresist		Nanoscribe resin	Nanoscribe	
IP-L Photoresist		Nanoscribe resin	Nanoscribe	
IP-Q Photoresist		Nanoscribe resin	Nanoscribe	
IP-S Photoresist		Nanoscribe resin	Nanoscribe	
IP-Visio Photoresist		Nanoscribe resin	Nanoscribe	
Iron	Fe	Deposition Source	EBE, DC Sputter	
Iron(III) Oxide Etchant	Iron(III) Oxide Etchant	Etchant	-	
Isopropyl Alcohol	IPA	Solvent	-	

JRD1	JRD1	Coating agent	Spin coaters
Lanthanum fluoride	LaF2	Deposition Source	EBE
Lithium Aluminum Germanium Phosphate	LAPG	Deposition Source	RF Sputter
Lithium Niobate	LiNbO3	Substrate	EBE, DC Sputter
Lithium Tantalum Oxide	LiTaO3	Deposition Source	RF Sputter
LOR 10A	LOR	Photoresist	Spin coaters
LOR 30B	LOR	Photoresist	Spin coaters
LOR 3A	LOR	Photoresist	Spin coaters
LOR A1	LOR	Photoresist	Spin coaters
Machinable Glass Ceramic	MACOR, Ceramic	Substrate	EBE, DC Sputter, RF Sputter
Magnesium	Mg	Deposition Source	EBE
Magnesium Fluoride	MgF2	Deposition Source	EBE
Ma-N 2410		Photoresist	EVG610, MA6, MLA150
MCC Primer	MCC	adhesion promoter	Spin coaters
Mercuric Nitrate	Hg(NO3)2	Electroplater Titration Chemical	Electroplaters
Methanol	Methanol	Solvent	-
Methyl Orange	Methyl Orange	Electroplater Titration Chemical	Electroplaters
MF CD-26		Developer	Fume hoods
MIBK:IPA 1:3	EBL Developer	Developer	-
Microposit MF-319	Microposit MF-320	Developer	-
MMA(8.5) MAA EL9		Electron resist	spin coaters
Molybdenum	Mo	Deposition Source	EBE, DC Sputter, Clustex
Molybdenum Trioxide	MoO3	Deposition Source	RF Sputter, Clustex
Nanostrip		Alternative to piranha solution	Wet bench
NCM, Carbon Black, and PVDF film	NCM is composed of metal oxides; PVDF is an ethene, 1,1-difluoro-, homopolymer	Film on Al foil (not powders)	4-pt probe
Nickel Etchant	Nickel Etchant, Ferric Chloride	Etchant	-
Nickel Oxide	NiO	Deposition Source	Clustex
Niobium	Nb	Deposition Source	DC Sputter
Niobium Nitride	NbN	Deposition Source	RF Sputter, Clustex
Niobium Oxide	NbO	Deposition Source	Clustex
Nitric Acid	Nitric Acid	Acid	Fume hoods, Electroplaters
Novec 7100		Solvent	
NR 9 -1000PY		Negative resist	spin coaters
NR26-12000P		Negative resist	spin coaters
NR7		Negative resist	spin coaters
NR78-3000P		Negative resist	spin coaters
NR9-1500PY		Negative resist	spin coaters
NR9-3000PY		Negative resist	spin coaters
NR9-6000PY		Negative resist	spin coaters
Omnicoat	Omnicoater	Adhesion promoter/releases for SU8	Wet bench
P(VDF-TrFE-CTFE), BaTiO3/PVDF composite (BaTiO3 20%wt), and BaTiO3/P(VDF-TrFE-CTFE) composite (BaTiO3 20%wt) substrates		Substrates	DC Sputter
Palladium	Pd	Deposition Source	DC Sputter
PermiNex 2015	PermiNex 2015	Negative resist	EVG610, MA6, MLA150
Phosphoric Acid	Phosphoric Acid	Acid	-
Platinum	Pt	Deposition Source	EBE, DC Sputter
Poly (methyl methacrylate)	PMMA	EBL Resist, substrate	EBL, Leskers
Poly(acrylic acid)	PAA	Acidic cleaning agent	
Polydimethylsiloxane	PDMS	Solvent	-
Polyether ether ketone	PEEK	Shadow mask	EBE
Polyethylene Terephthalate	PET	Substrate	RF Sputter
Polystyrene	PS	Substrate	RF Sputter
Polystyrene microspheres		Substrate, Deposition Source	Tegal asher
Polyvinylidene Difluoride	PVDF	Substrate	EBE, DC Sputter, RF Sputter
Potassium Hydroxide	KOH	Etchant	-
Potassium iodide	KI	Electroplater Titration Chemical	Electroplaters
Propylene Glycol Methyl Ether Acetate	PGMEA, NanoScribe Developer	Developer	-
RD6	RD6	Resist developer	Web bench
Rhodium	Rh	Deposition Source	DC Sputter
Ruthenium	Ru	Deposition Source	DC Sputter
Ruthenium Oxide	RuO2	Deposition Source	Clustex
S1818	S1819	Photoresist	-
Sapphire enclosed Csi crystals			Spin coaters, Heidelberg
Scandium	Sc	Deposition Source	EBE2 only
Silicon	Si	Substrate, Deposition Source	EBE, DC Sputter, RF Sputter, Clustex
Silicon Dioxide	SiO2	Deposition Source	EBE, RF Sputter
Silicon Monoxide	SiO	Deposition Source	EBE
Silicon Nitride	SiNx	Deposition Source	Clustex
Silver	Ag	Deposition Source	Clustex, EBE, DC Sputter
Silver Nitrate	AgNO3	Electroplater Titration Chemical	Electroplaters
Silver Paste	Silver Paste	Thermally Conductive Sealant	DC Sputter, RF Sputter
Sodium Hydroxide	NaOH	Electroplater Titration Chemical	Electroplaters
Sodium Phosphate	TSP, Na3PO4	Electroplater Cleaning/Leaching Chemical	Electroplaters
Sodium Thiosulfate	Na2S2O3	Electroplater Titration Chemical	Electroplaters
Spin-On Glass NDG-800	SOG	Spin-on Material	Laurell PHOTO Spin Coater
Starch Indicator		Electroplater Titration Chemical	Electroplaters
SU-8	SU-8	Photoresist	-
SU-8 developer	SU-8 Developer	Developer	Fume hoods
Sulfuric Acid	Sulfuric Acid	Acid	Fume hoods, Electroplaters
Sylgard 184 Silicone Elastomer	Sylgard 184 Silicone Elastomer	Transparent Encapsulant	-
Sylgard Curing Agent	Sylgard Curing Agent	Transparent Encapsulant	-
Tantalum	Ta	Deposition Source	EBE, DC Sputter
Tantalum / Aluminum	Ta / Al	Deposition Source	Clustex
Tantalum Carbide	TaC	Deposition Source	Clustex
Tantalum Nitride	TaN	Deposition Source	RF Sputter
Tantalum Oxide (Ta2O5)	TaO5	Deposition Source	Clustex, RF sputter, EBE
Tantalum Oxide (TaO1.8)	Ta1.8	Deposition Source	Clustex
Tantalum Oxide (TaO2)	TaO2	Deposition Source	Clustex
Tantalum Oxide(TaO2.2)	TaO2.2	Deposition Source	Clustex

PPE and ventilation

PPE Required

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PPE Required

PPE Required

PPE Required

Depositions must be unheated

Greater than or equal to 1 micron in size

No substrate heating

PPE and ventilation

PPE Required

PPE Required

PPE Required and ventilation
Adequate Ventilation

PPE Required

Tantalum Silicide	TiSi2	Deposition Source	Clustex	
Tetrakis(ethylmethyamido)hafnium	TEMAHf	Precursor	Thermal CN1 ALD	
Tetramethylammonium Hydroxide	TMAH, TMAOH	Developer	-	PPE Required
Titanium	Ti	Deposition Source	EBE, DC Sputter	
Titanium Carbide	TiC	Deposition Source	Clustex	
Titanium Dioxide	TiO2	Deposition Source	EBE, Clustex, Lesker RF	
Titanium Etchant	Ti Etch	Etchant	-	PPE Required
Titanium Nitride	TiN, Ti-Nitride	Deposition Source	RF Sputter	
Titanium Oxide	TiO, Ti-Oxide	Deposition Source	EBE, Clustex	
Toluene	Toluene	Solvent	Bidtec, fume hoods	Ventilation Required
Trichloroethylene	TCE	Solvent	-	
Trimethylaluminum	TMA	Precursor	Plasma/Thermal CN1 ALD	
Tris(dimethylamido)zirconium cyclopentadienide	CpZr	Precursor	Thermal CN1 ALD	
Tris(dimethylamino)silane,	3DMAS	Precursor	Plasma CN1 ALD	
Tungsten	W	Deposition Source	DC Sputter	
Tungsten Oxide	W2O5	Deposition Source	Clustex	
Turpentine Oil	Turpentine, Oil of Turpentine	Solvent	-	
Upbrix		UpNano Resin	UpNano	
Updraft		UpNano Resin	UpNano	
Upflow		UpNano Resin	UpNano	
Upopto		UpNano Resin	UpNano	
UpPhoto		UpNano Resin	UpNano	
UpQuartz		UpNano Resin	UpNano	
Upsol		UpNano Resin	UpNano	
Vanadium Oxide	VO	Deposition Source	Clustex	
Xylene	Xylene	Solvent	-	
Ytterbium	Yb	Deposition Source	EBE	
ZDMAC	ZDMAC	EBL Stripper	-	
ZED-N50	ZED-N51	EBL Developer	-	
ZEPS20	ZEPS21	EBL Resist	-	
Zinc Oxide	ZnO	Deposition Source	RF Sputter	
Zirconium	Zr	Deposition Source	DC Sputter	
Zirconium Oxide	Zirconia, ZrO2	Deposition Source	Clustex	