

RISK ASSESSMENT OF CHEMICALS at Kavli Nanolab

Chemicals	RISK Category	GHS codes	Safety aids
Flammable and irritating	LOW RISK		
General			
Aceton (cold)	Highly flammable. Irritating to eyes. Vapours may cause drowsiness and dizziness.	flammable irritating	water
Ethanol	Highly flammable. Irritating to eyes.	flammable	water
Methanol	Toxic by inhalation; in contact with skin; if swallowed. Highly flammable.	flammable toxic health hazard	water
Isopropyl alcohol (IPA) 2-propanol	Irritating to eyes. Vapours may cause drowsiness and dizziness.	flammable irritating	water
Sulfur	Harmful if swallowed; contact with skin; if inhaled.	irritating	water
Solvents - Resists			
MIBK Methyl Isobutyl Ketone 4-methyl-2-pentanone	Harmful by inhalation. Irritating to eyes. Irritating to respiratory system.	flammable irritating	water
PGMEA	Flammable liquid and vapor. Irritating to eyes.	flammable irritating	water
Anisole (cold)	Flammable liquid and vapor. Repeated exposure may cause skin dryness or cracking.	flammable	water
Ethyl lactate	Flammable liquid and vapor. May cause respiratory irritation. Causes serious eye damage.	flammable irritating corrosive	water
Cyclopentanone	Flammable liquid. Irritating to skin; to eyes.	flammable irritating	water
1,3-Dioxolane	Flammable liquid.	flammable	water
Developers - Strippers			
TMAH <5% in MF developer	Causes serious eye damage. Irritating to eyes.	health hazard irritating	diphoterine
Inorganic developers	Causes serious eye damage. Irritating to eyes.	health hazard irritating	diphoterine
NMP N-Methyl-2-pyrrolidone	Irritating to eyes. Irritating to respiratory system. Irritating to skin. May cause harm to the unborn child.	health hazard irritating	water
PRS 3000	Flammable liquid. Causes serious eye damage. Irritating to skin. May cause respiratory irritation.	health hazard irritating corrosive	water
Methyl Sulfoxide Dimethyl Sulfoxide (DMSO)	Causes skin irritation. Causes serious eye damage.	irritating	water
Dimethylformamide (DMF)	Flammable liquid and vapor. Harmful by inhalation. Harmful in contact with skin; to eyes. May cause harm to the unborn child.	flammable irritating health hazard	water
Amyl acetate Pentyl acetate	Flammable liquid and vapor.	flammable	water
Toluene	Highly flammable. Irritating to skin. May cause drowsiness or dizziness.	flammable irritating health hazard	water
Xylene	Flammable liquid and vapor. Harmful in contact with skin; to eyes; if inhaled.	flammable irritating	water

Chemicals	RISK Category	GHS codes	Safety aids
	MEDIUM RISK		
Solvents (Explosive)			
Acetone (hot)	Irritating to eyes. Vapours may cause drowsiness and dizziness.	flammable irritating	water
Anisole (hot)	Flammable liquid.	flammable	water
Acids, alkalines (Corrosive)			
Hydrochloric acid (HCl)	Harmful if swallowed. Toxic by inhalation. Causes severe skin burns.	corrosive irritating	diphoterine
Sulfuric acid (H2SO4)	Toxic by inhalation. Causes severe skin burns. Risk of serious damage to eyes.	corrosive	diphoterine
Acetic Acid (CH3COOH)	Flammable liquid and vapor. Causes severe skin burns and eye damage.	flammable corrosive	diphoterine
Phosphoric acid (H3PO4) / Transene-D, Transetch N	Harmful if swallowed. Causes severe skin burns. Risk of serious damage to eyes.	corrosive irritating toxic	diphoterine
Citric acid	Causes serious eye irritation.	irritating	diphoterine
KOH solution (making the solution is HIGH risk) / NaOH	Harmful if swallowed. Causes severe skin burns. Risk of serious damage to eyes.	corrosive irritating	diphoterine
Ammonia (28% NH4OH) / Ammonium Hydroxide	Causes severe skin burns and eye damage. Harmful by inhalation.	corrosive irritating	diphoterine
Cr etchant <i>5% nitric acid 15% CeNH4NO3</i>	Causes severe skin burns and eyes damage. Harmful if swallowed; in contact with skin; inhaled.	corrosive oxidizing health hazard	diphoterine
Au etchant <i>40% KI, 10% I2</i>	Causes skin irritaion and serious eye irritation. Harmful if inhaled; swallowed.	health hazard irritating	diphoterine
Cu etchant / APS100 <i>30% ferric chloride, 4% HCl</i>	Causes severe skin burns and eyes damage. Harmful if swallowed; inhaled.	corrosive health hazard	diphoterine
	HIGH RISK		
Poisonous (Lethal)			
HF <7% (incl. BOE) / SiloxVapox III	Poisonous if ingested, at skin contact and if inhaled Causes severe injury to skin and eyes	toxic corrosive	hexafluorine
HF 7-40% / Tantal111G (Ta etchant)	Fatal if swallowed; in contact with skin; if inhaled. Cause severe skin burns and eye damage. May cause respatoraty irritation	toxic corrosive	hexafluorine
Ammonium fluoride (NH4F)	Toxic by Inhalation; in contact with skin; if swallowed.	toxic	hexafluorine
TMAH >5%	Fatal if swallowed; in contact with skin; if inhaled. Causes severe skin burns and eye damage.	toxic corrosive	diphoterine
Fumic Nitric Acid (100% HNO3)	Very toxic by inhalation. Causes severe skin burns. Irritating to respiratory system. Risk of serious damage to eyes.	oxidizing corrosive toxic health hazard	diphoterine
Nitric Acid (65% HNO3)	Very toxic by inhalation. Causes severe skin burns. Irritating to respiratory system.	oxidizing corrosive	diphoterine
Highly Reactive			
Piranha (H2O2/H2SO4)	Strongly oxidizing. Very toxic by inhalation. Causes severe skin burns.	oxidizing	diphoterine
RCA-1 / RCA-2	Very toxic by inhalation. Strongly oxidizing. Causes severe skin burns.	corrosive oxidizing	diphoterine
Aqua Regia (HNO3/HCl)	Causes severe injury to skin and eyes. May cause respatoraty irritation. Harmful if inhaled; swallowed. May intensify fire; oxidizer.	corrosive irritating oxidizing health hazard	diphoterine
Hydrogenperoxide (H2O2)	Harmful by inhalation; if swallowed. Causes severe injury to skin and eyes. Irritating to respiratory system.	oxidizing corrosive irritating	diphoterine
Perchloric acid (HClO4) 60%	Harmful if swallowed. Causes severe injury to skin and eyes. May cause respiratory irritation. May cause fire or exploding; strong oxidizer.	oxidizing irritating health hazard corrosive	diphoterine
Ammonium sulfide solution 20%	Causes severe burns. Risk of serious damage to eyes.	corrosive	diphoterine

For more information about other chemicals, please ask the KN staff.