

Fixation	
Additive	chemically linked
Non-Additive	not chemically linked
Coagulant	creates mesh
Non-coagulant	creates gel

Fixatives		
Formaldehyde	Additive	Non-coagulant
Gluteraldehyde	Additive	Non-coagulant
Osmium tetroxide	Additive	Non-coagulant
Potassium dichromate	Additive	Non-coagulant
Mercuric chloride	Additive	Coagulant
Chromic acid	Additive	Coagulant
Picric acid	Additive	Coagulant
Zinc salts	Additive	Coagulant
Alcohol	Non-additive	Coagulant
Acetone	Non-additive	Coagulant
Acetic acid	Non-additive	Coagulant

Factors Affecting Fixation	
Temperature increase	speeds up fixation and autolysis
Temperature decrease	slows down fixation and autolysis
Size (Electron microscopy)	1 mm thick
Size (Routine surgical)	4 mm thick, 20 mm width, 30 mm length
Volume of fixative	15-20x greater than tissue
Time	At least 24 hours
Penetration (Fast)	Alcohol, acetic acid, acetone
Penetration (Slow)	Osmium tetroxide, gluteraldehyde
pH (Formalin fixed)	6.8-7.2

Fixation Accelerators	
What accelerates fixation?	Heat, agitation, and vacuum

Cell Reaction with Fixative	
Nucleus	No reaction
Protein	Stabilized
Lipid	Only fixed with osmium tetroxide and chromic acid, not aldehydes
Carbohydrates	Some loss during fixation



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Page 1 of 1.

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