

## 3. PREPARATION AND EXAMINATION OF SPECIMENS

Table 3.1.1.4. Reservoir solutions for sparse-matrix sampling (Jancarik &amp; Kim 1991)

No.	Salt	Buffer	Precipitant (% by mass)
1	0.02 M Ca chloride	0.1 M Acetate	30% MPD
2			0.4 M Na, K tartrate
3			0.4 M NH <sub>4</sub> phosphate
4	0.2 M Na citrate	0.1 M Tris	2.0 M NH <sub>4</sub> sulfate
5			40% MPD
6	0.2 M Mg chloride	0.1 M Tris	30% PEG 4000
7			1.4 M Na acetate
8	0.2 M Na citrate	0.1 M Cacodylate	30% 2-Propanol
9	0.2 M NH <sub>4</sub> acetate	0.1 M Citrate	30% PEG 4000
10	0.2 M NH <sub>4</sub> acetate	0.1 M Acetate	30% PEG 4000
11	0.2 M Mg chloride	0.1 M Hepes	1.0 M NH <sub>4</sub> phosphate
12			30% 2-Propanol
13	0.2 M Na citrate	0.1 M Tris	30% PEG 400
14	0.2 M Ca chloride	0.1 M Hepes	28% PEG 400
15	0.2 M NH <sub>4</sub> sulfate	0.1 M Cacodylate	30% PEG 8000
16			1.5 M Li sulfate
17	0.2 M Li sulfate	0.1 M Tris	30% PEG 4000
18	0.2 M Mg acetate	0.1 M Cacodylate	20% PEG 8000
19	0.2 M NH <sub>4</sub> acetate	0.1 M Tris	30% 2-Propanol
20	0.2 M NH <sub>4</sub> sulfate	0.1 M Acetate	25% PEG 4000
21	0.2 M Mg acetate	0.1 M Cacodylate	30% MPD
22	0.2 M Na acetate	0.1 M Tris	30% PEG 4000
23	0.2 M Mg chloride	0.1 M Hepes	30% PEG 400
24	0.2 M Ca chloride	0.1 M Acetate	20% 2-Propanol
25			1.0 M Na acetate
26	0.2 M NH <sub>4</sub> acetate	0.1 M Citrate	30% MPD
27	0.2 M Na citrate	0.1 M Hepes	20% 2-Propanol
28	0.2 M Na acetate	0.1 M Cacodylate	30% PEG 8000
29	0.2 M NH <sub>4</sub> sulfate	0.1 M Hepes	0.8 M Na, K tartrate
30			30% PEG 8000
31	0.2 M NH <sub>4</sub> sulfate	0.1 M Hepes	30% PEG 4000
32			2.0 M NH <sub>4</sub> sulfate
33	0.1 M Acetate	0.1 M Hepes	4.0 M Na formate
34			2.0 M Na formate
35	0.1 M Tris	0.1 M Hepes	1.6 M Na, K phosphate
36			8% PEG 8000
37	0.1 M Acetate	0.1 M Hepes	8% PEG 4000
38			1.4 M Na citrate
39	0.1 M Hepes	0.1 M Hepes	2% PEG 400,
40			2.0 M Na sulfate
41	0.1 M Citrate	0.1 M Hepes	20% 2-Propanol + 20% PEG 4000
42			10% 2-Propanol + 20% PEG 4000
43	0.05 M K phosphate	0.1 M Hepes	20% PEG 8000
44			30% PEG 1500
45	0.2 M Zn acetate	0.1 M Cacodylate	0.2 M Mg formate
46			18% PEG 8000
47	0.2 M Ca acetate	0.1 M Cacodylate	18% PEG 8000
48			2.0 M NH <sub>4</sub> sulfate
49	1.0 M Li sulfate	0.1 M Acetate	2.0 M NH <sub>4</sub> sulfate
50			0.1 M Tris
			2% PEG 8000
			15% PEG 8000

Abbreviations: tris: 2-amino-2-(hydroxymethyl)-1,3-propanediol; hepes: 4-(2-hydroxyethyl)-1-piperazineethanesulfonic acid. Buffers: Na acetate buffer, pH = 4.6; Na citrate buffer, pH = 5.6; Na cacodylate buffer, pH = 6.5; Na hepes buffer, pH = 7.5; tris/HCl buffer, pH = 8.5.

conditions. For diffractometry purposes, it is customary to bathe the crystal in the X-ray beam, so that elongated crystals may require cutting with a razor blade in order to trim them to an appropriate size. Large crystals of hard materials can be ground into spheres or cylinders (Jeffery, 1977), so that corrections can be readily made to the observed intensities for systematic errors in absorption (see

Chapter 6.3). Crystals that have elongated prismatic or needle shapes are often useful if data are collected using oscillation geometry, since the crystal can be translated in the X-ray beam at intervals during data collection to minimize radiation damage (Subsection 3.4.1.5). In general, all shapes can be accommodated, but those that are grossly asymmetric (*e.g.* very thin plates) may give elongated or distorted