

SPICA

Polyimide Micro Tube

Low X-ray background
Low water permeability

Protein Wave Corporation

Introduction

SPICA is polyimide resin-based micro tubes used for X-ray diffraction studies. X-ray background (BKG) is dramatically reduced in SPICA because of its controlled polymerization structure of polyimide molecules.

Features of SPICA

- ◇ Application: X-ray powder diffraction, Single crystal X-ray diffraction, Neutron diffraction
- ◇ Heat resistivity: Max. temperature of 300°C
- ◇ Chemical stability: Insoluble against acid and organic solvent
- ◇ Materials: Low BKG ST and SP grades, BKG-free LB grade
- ◇ Advantage of SPICA:
 - X-ray BKG is dramatically reduced in our SPICA compared with Kapton tube.
 - Tube color is light yellow (ST), SP (colorless), and LB (light brown). This makes easier for observation of your embedded samples.
 - Low water permeability is achieved compared with Kapton tube.
 - Safety experiment is secured against breaking of tube such as glass.



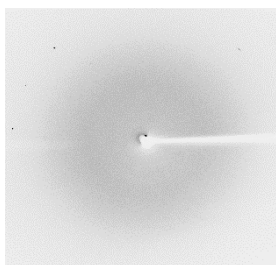
ST grade
(light yellow)

SP grade
(colorless)

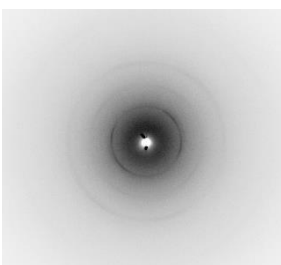
LB grade
(light brown)

Comparison of X-ray Background

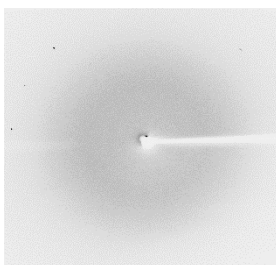
1. SPICA



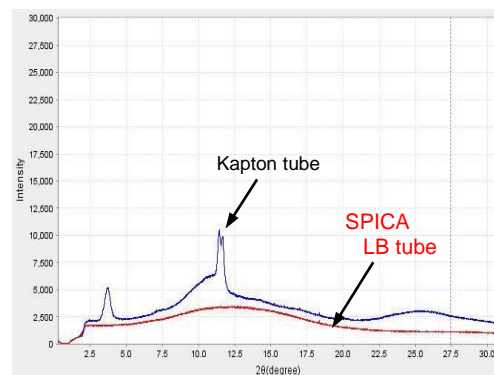
(1) Improved ST tube
(thickness=20um)



(2) SP tube
(thickness=20um)

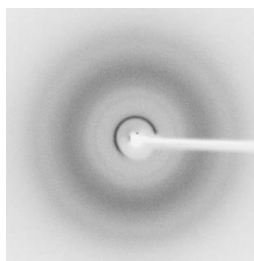


(3) LB tube
(thickness=20um)

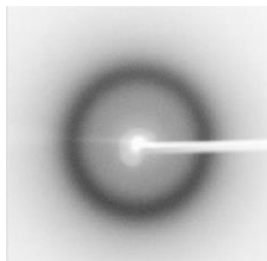


X-ray background (2θscan)
(SPring-8 @BL19B2)

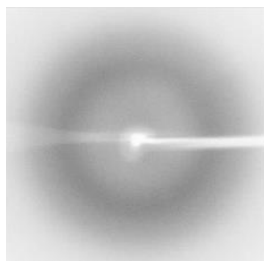
2. Conventional Kapton and Glass tubes



(1) Kapton tube
(thickness=20um)



(2) Quartz tube
(thickness=10um)



(3) Lindemann glass tube
(thickness=10um)

Experimental conditions

- X-ray Source/Diffractometer:
RIGAKU RAXIS7/ FR-E Super Bright
RAXIS4/ FR-E Super Bright
- Exposure time: 3min
- Oscillation angle: 90deg
- Temperature: 20°C

「Order Information」

Polyimide resin	ST		SP		LB	
X-ray BKG / Tube color	Low-background	Light yellow	Low-background	Colorless	Background-free	Light brown
Inner diameter	Code	Pack	Code	Pack	Code	Pack
0.3mm	PW401-ST03	20	PW401-SP03	20	PW401-LB03	20
0.8mm	PW401-ST08	20	PW401-SP08	20	PW401-LB08	20
1.0mm	PW401-ST10	20	PW401-SP10	20	PW401-LB10	20
2.0mm	PW401-ST20	20	PW401-SP20	20	PW401-LB20	20
3.0mm	PW401-ST30	20	PW401-SP30	20	PW401-LB30	20
7.0mm	PW401-ST70	5	PW401-SP70	5	PW401-LB70	5

「Water Permeability」

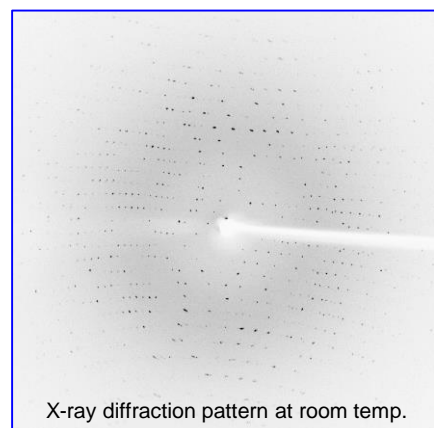
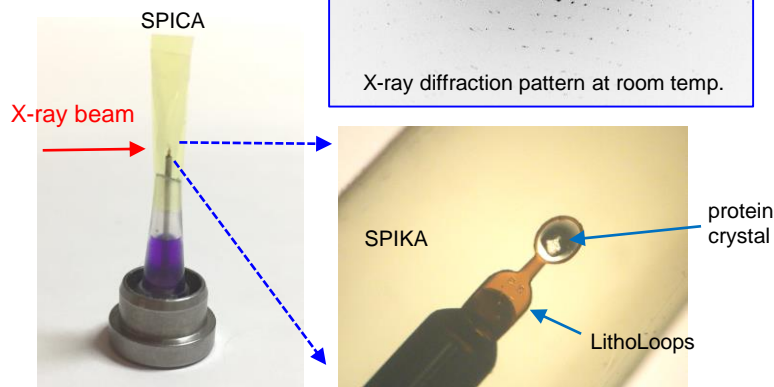
Materials	Water permeability ((H ₂ O) g/m ² · 24hr)
Kapton (commercial products))	42
Our polyimide film	37

Measurement conditions	
Temperature and humidity:	40 °C, 90%RH
Film transparent area:	0.000962 m ²
Film thickness:	20micron
Vapor (water) flow rate:	10.4 cc/min
H ₂ O Detection:	Gas chromatography

「Product Photo of LB Tubes」



Specification:
 Tube length=40mm, thickness=20um
 One end is normally closed



MOIST: Room tem. data collection tool for protein crystallography
 SPIKA is used to prevent dry-up of looped out drop solution and crystal.

「How to Order / Q & A」

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