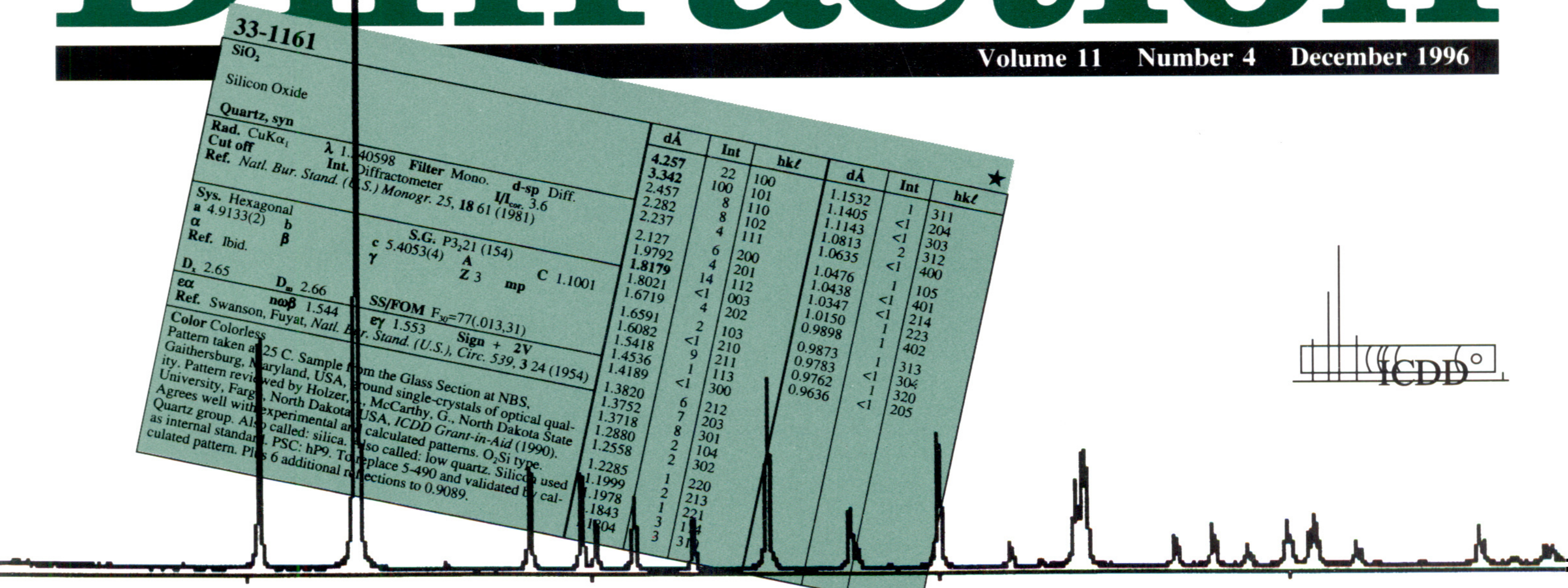
Powder Diffraction

An international journal of materials characterization

Volume 11 Number 4 December 1996



33-1161

SiO_2

Silicon Oxide

Quartz, syn

Rad. CuKα₁ **λ** 1.540598 **Filter** Mono. **d-sp** Diff.
Cut off **Int.** Diffractometer **I/I$_{cor.}$** 3.6
Ref. *Natl. Bur. Stand. (U.S.) Monogr. 25,* **18** 61 (1981)

Sys. Hexagonal **S.G.** $P3_221$ (154)
a 4.9133(2) **b** **c** 5.4053(4) **A** **C** 1.1001
α **β** **γ** **Z** 3 **mp**
Ref. Ibid.

D$_x$ 2.65 **D$_m$** 2.66 **SS/FOM** F_{30}=77(.013,31)

εα **nωβ** 1.544 **εγ** 1.553 **Sign** + **2V**
Ref. Swanson, Fuyat, *Natl. Bur. Stand. (U.S.), Circ. 539,* **3** 24 (1954)

Color Colorless
Pattern taken at 25 C. Sample from the Glass Section at NBS, Gaithersburg, Maryland, USA, ground single-crystals of optical quality. Pattern reviewed by Holzer, ., McCarthy, G., North Dakota State University, Fargo, North Dakota, USA, *ICDD Grant-in-Aid* (1990). Agrees well with experimental and calculated patterns. O_2Si type. Quartz group. Also called: silica. Also called: low quartz. Silicon used as internal standard. PSC: hP9. To replace 5-490 and validated by calculated pattern. Plus 6 additional reflections to 0.9089.

dÅ	Int	hkℓ	dÅ	Int	hkℓ
4.257	22	100	1.1532	1	311
3.342	100	101	1.1405	<1	204
2.457	8	110	1.1143	<1	303
2.282	8	102	1.0813	2	312
2.237	4	111	1.0635	<1	400
2.127	6	200	1.0476	1	105
1.9792	4	201	1.0438	<1	401
1.8179	14	112	1.0347	<1	214
1.8021	<1	003	1.0150	1	223
1.6719	4	202	0.9898	1	402
1.6591	2	103	0.9873	1	313
1.6082	<1	210	0.9783	<1	304
1.5418	9	211	0.9762	1	320
1.4536	1	113	0.9636	<1	205
1.4189	<1	300			
1.3820	6	212			
1.3752	7	203			
1.3718	8	301			
1.2880	2	104			
1.2558	2	302			
1.2285	1	220			
1.1999	2	213			
1.1978	1	221			
1.1843	3	114			
1.1804	3	31			

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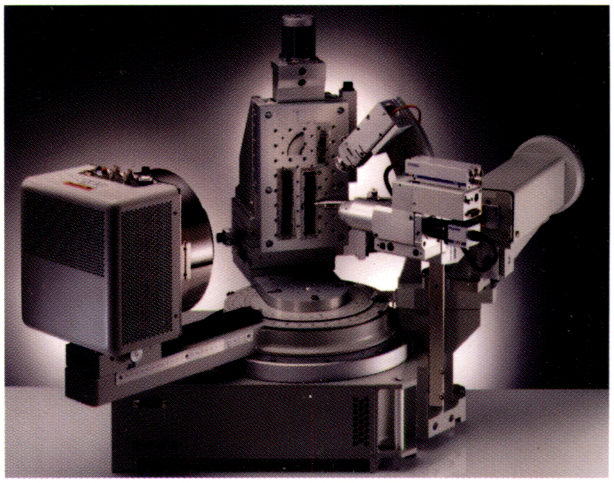

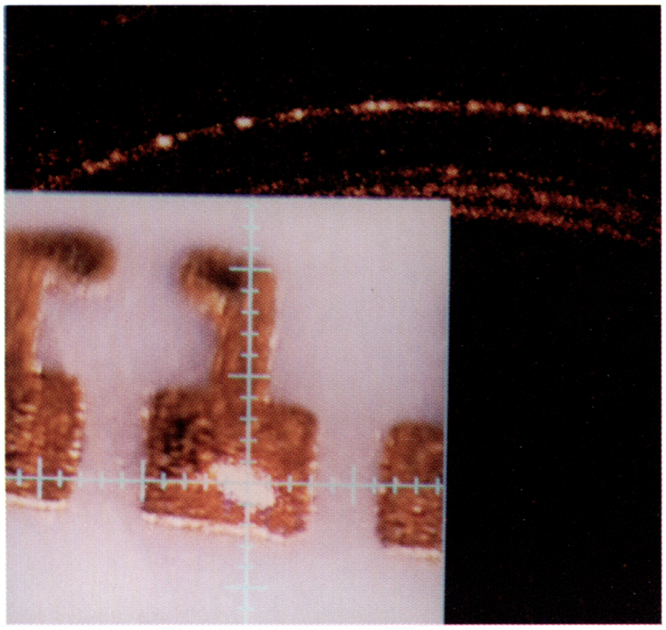

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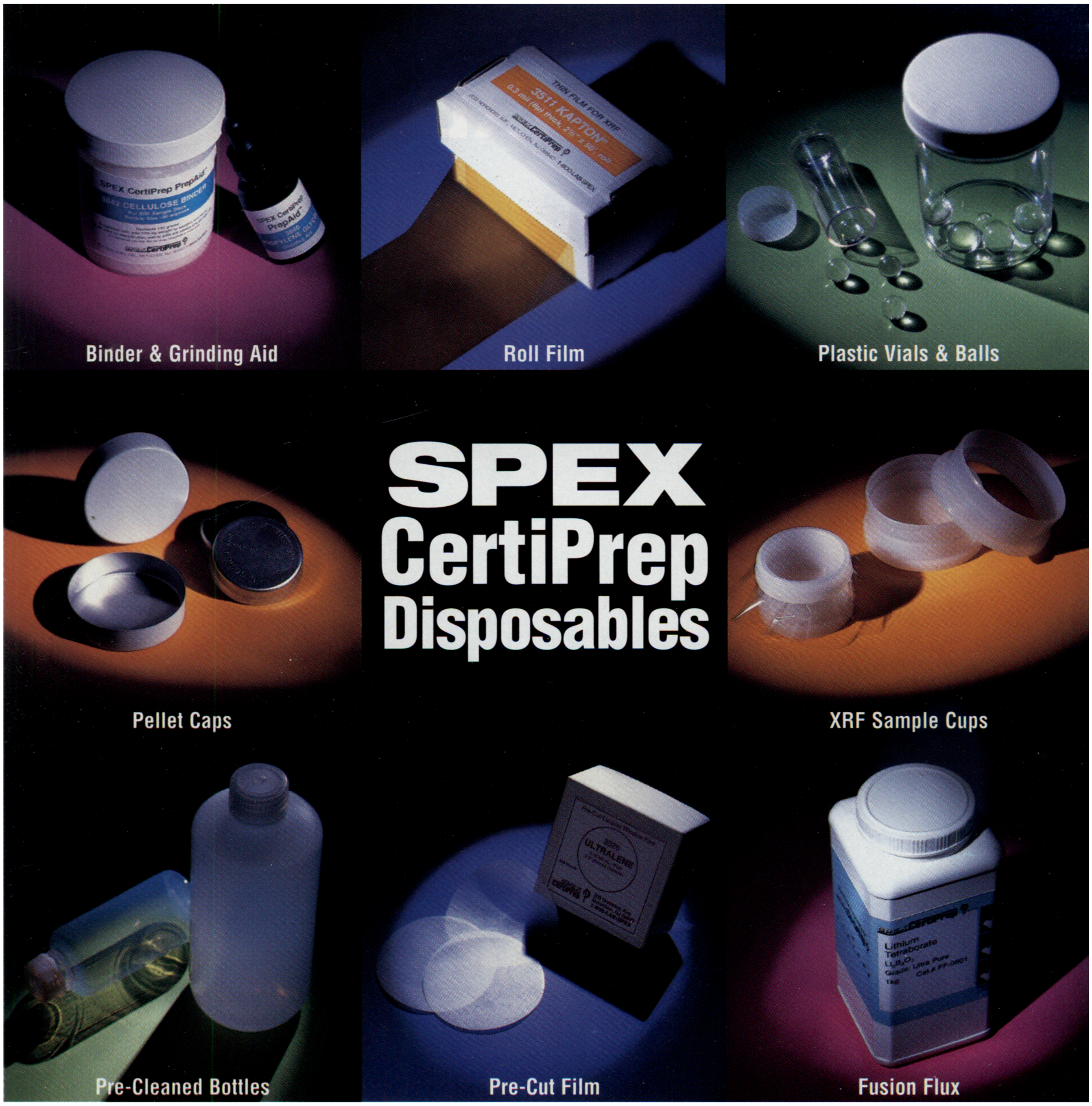
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Powder Diffraction

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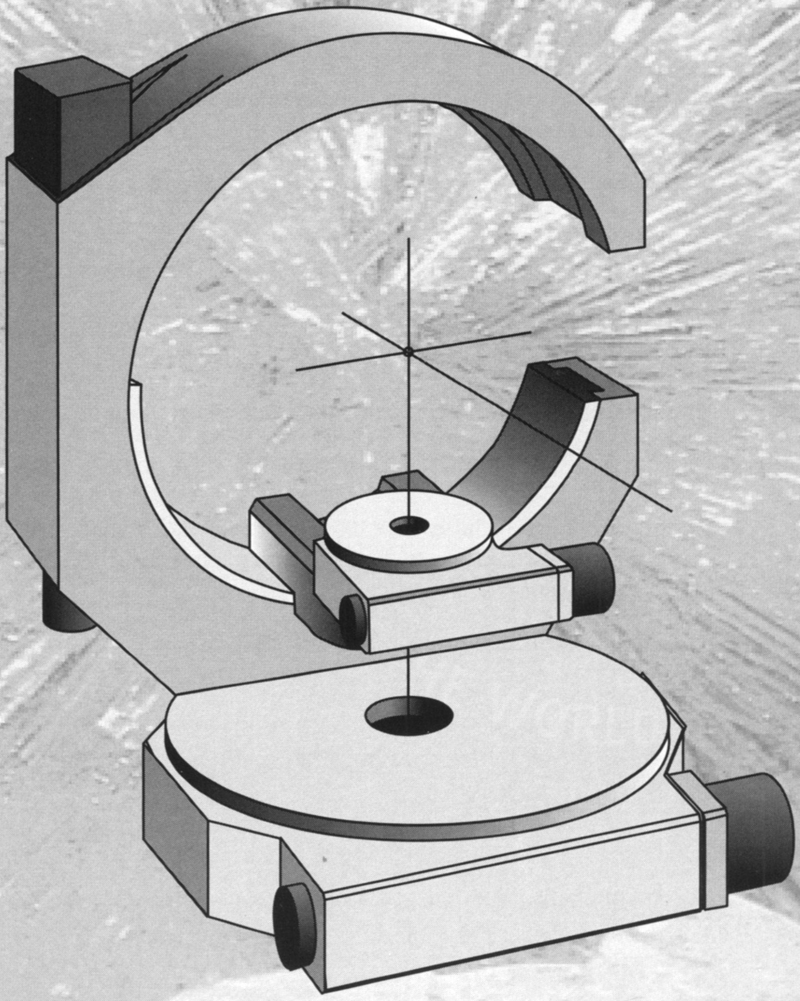

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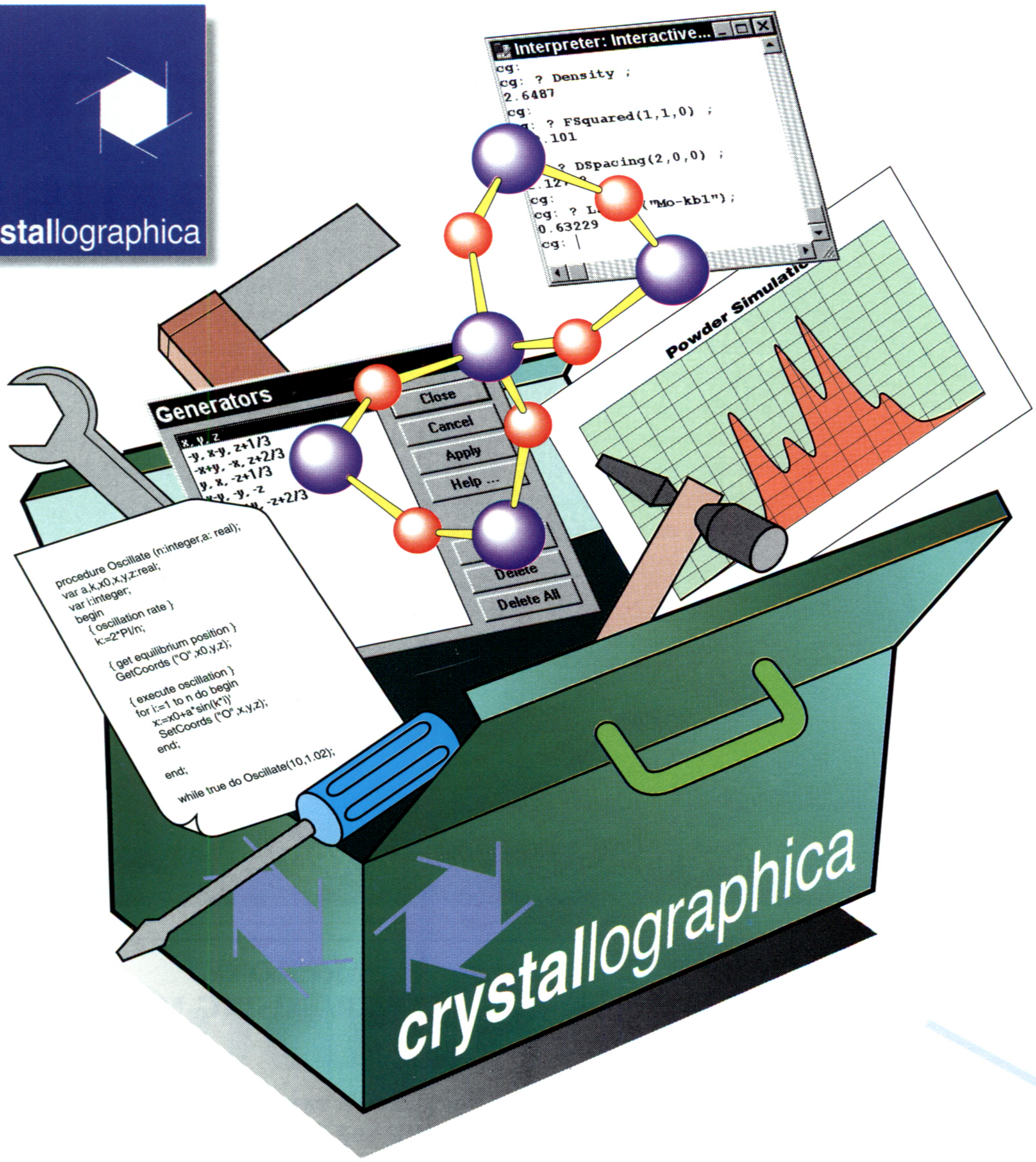

```
cg:
cg: ? Density ;
2.6487
cg:
  : ? FSquared(1,1,0) ;
 .101

  ? DSpacing(2,0,0) ;
 .12
cg:
cg: ? L    ("Mo-kb1");
0.63229
cg: |
```

```
procedure Oscillate (n:integer,a: real);
  var a,k,x0,x,y,z:real;
  var i:integer;
  begin
    { oscillation rate }
    k:=2*PI/n;

    { get equilibrium position }
    GetCoords ("O",x0,y,z);

    { execute oscillation }
    for i:=1 to n do begin
      x:=x0+a*sin(k*i)'
      SetCoords ("O",x,y,z);
    end;

  end;

  while true do Oscillate(10,1.02);
```

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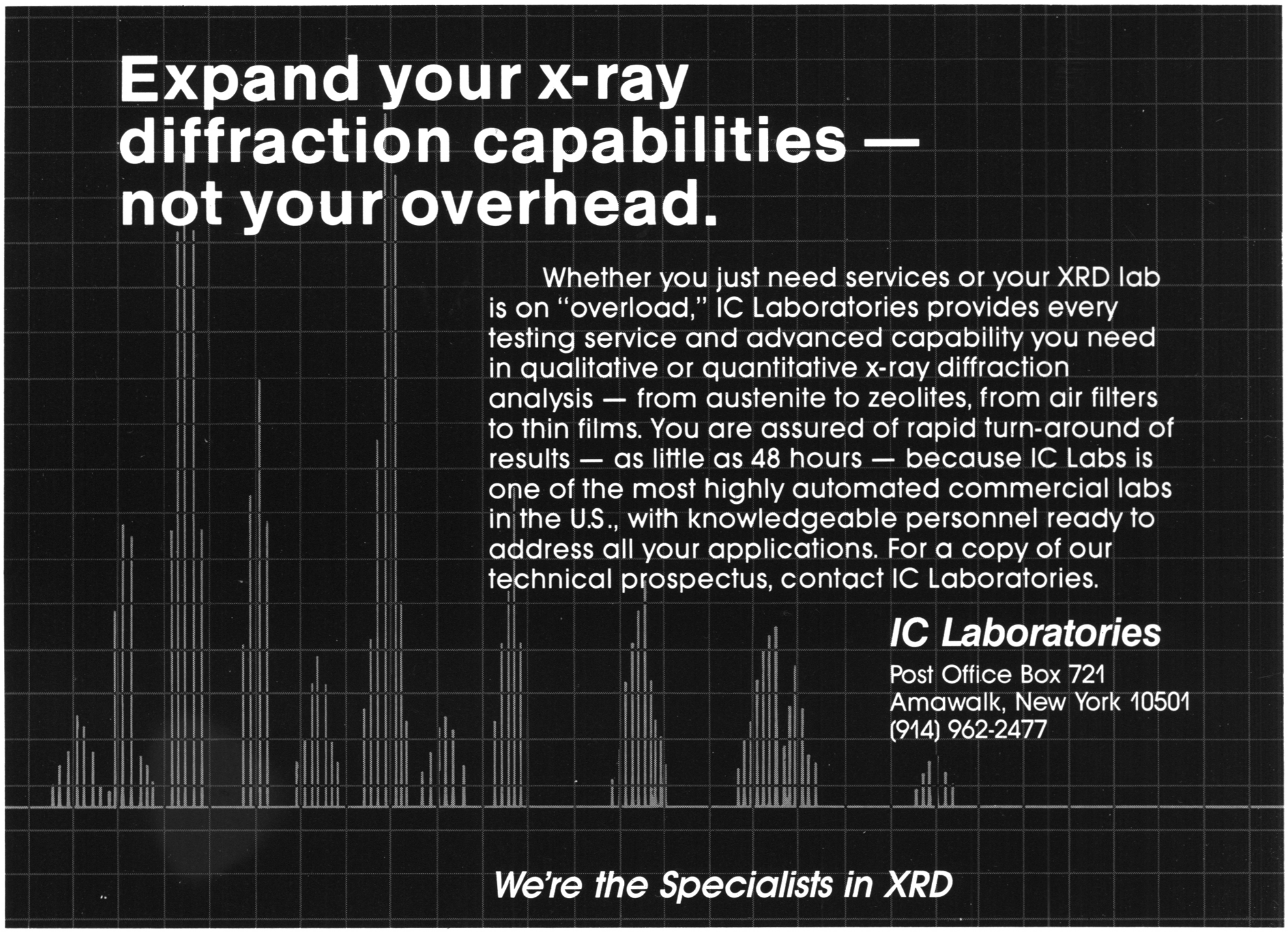

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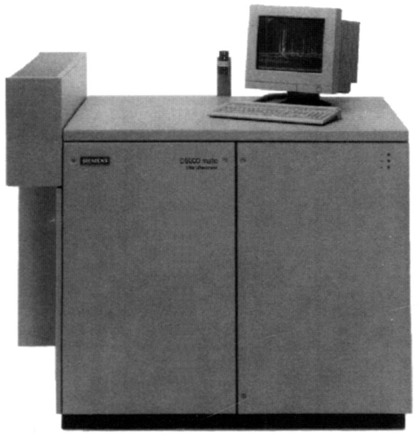

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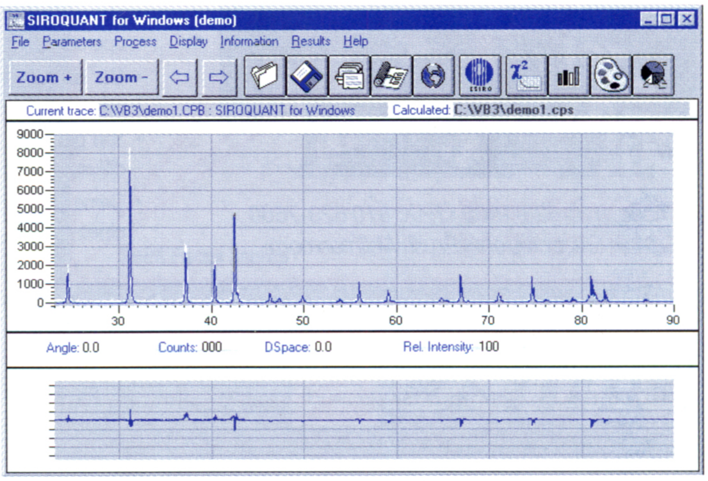

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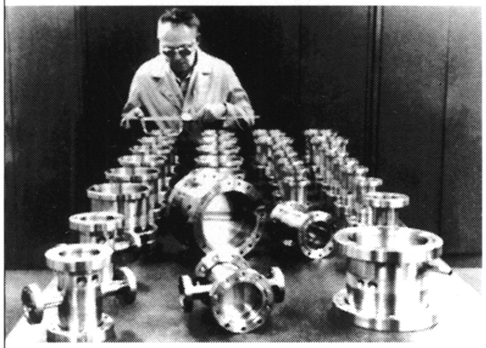

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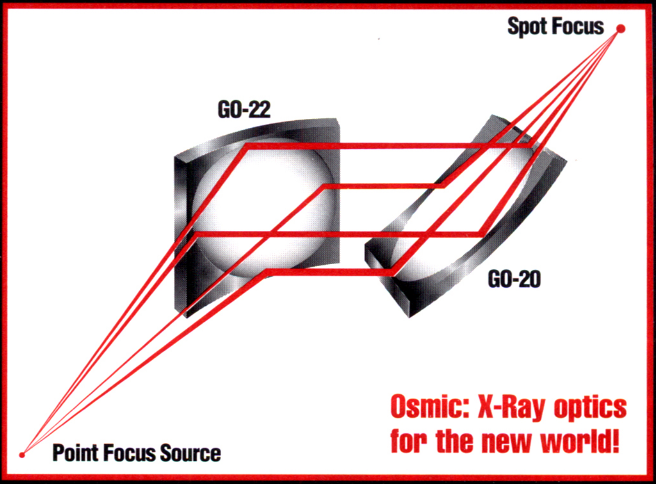
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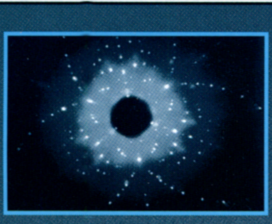

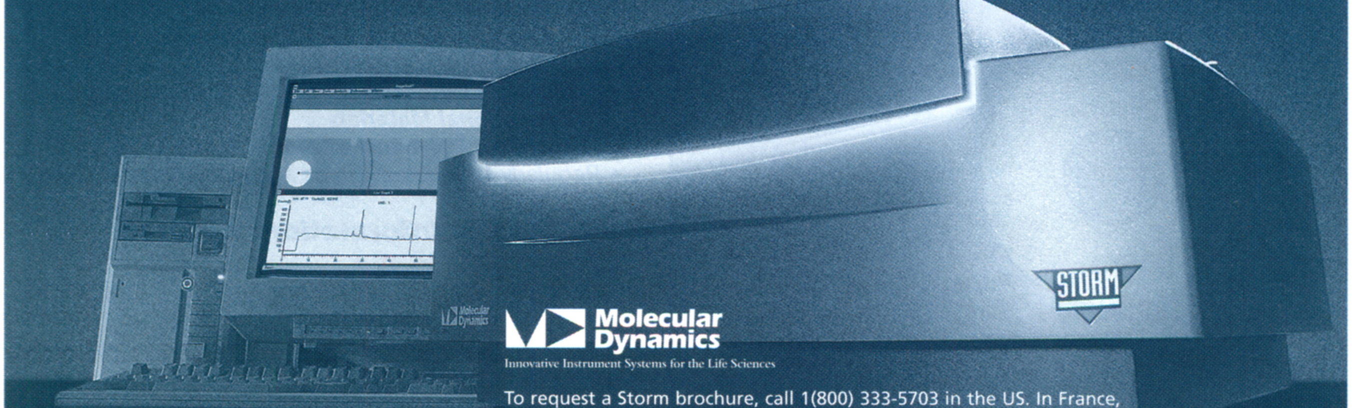
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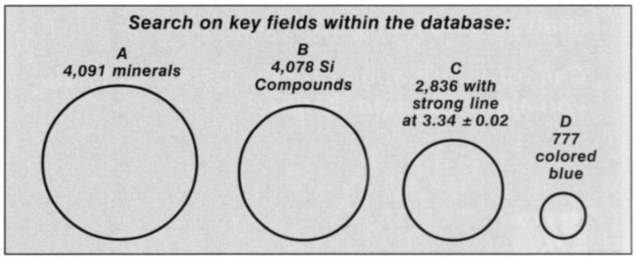

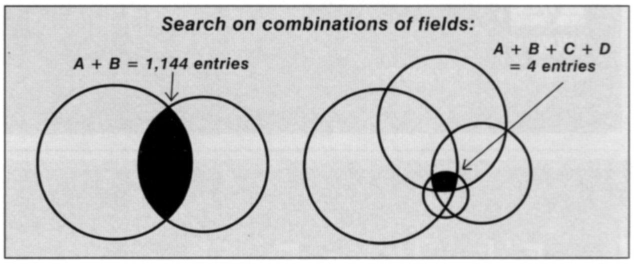

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