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Ferroelectrics and related substances

Subvolume C: Organic crystals, liquid crystals and polymers

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IF Survey of contained data

Each chapter of this volume corresponds to one family consisting of similar substances. This Subvolume C contains 23 families of organic crystals, liquid crystals and polymers, thus 23 chapters, as listed in the table of contents. Each section in a chapter is devoted to describing properties of one substance (pure compound or solid solution). Table IF-1 shows how the data are presented in each section: A section is divided into 16 subsections and each subsection gives the data on special properties (e.g., dielectric properties). The information given in each section is surveyed by a table at the beginning of the section according to the order of subsections 1...16 of Table IF-1.

A detailed two-dimensional survey of contained data is made in Table IF-2 which gives all the substances appearing in this subvolume along the ordinate and properties along the abscissa.

Table IF-1. Arrangement of data for each substance

Subsection	Information
1	History and fundamental quantities.
a	History (discoverer, year of discovery).
b	Fundamental quantities (phases, state (F, A, P), crystal system, space group of each phase, transition temperatures, direction of spontaneous polarization, melting point, density, transparency and color, cleavage plane, deliquescence and efflorescence, phase diagram for solid solution).
2	Material preparation and crystal growth.
a	Method, solubility in fluxes or solvents.
b	Crystal forms, <i>a</i> , <i>b</i> , <i>c</i> axes, <i>X</i> , <i>Y</i> , <i>Z</i> axes.
3	Crystal structure.
a	Unit cell parameters.
b	Crystal structure (<i>Z</i> , table of positional and temperature parameters, interatomic distances and bond angles, figure of crystal structures, structural change associated with phase transitions).
4	Lattice distortions (thermal expansion, lattice deformation associated with spontaneous polarization).
5	Dielectric properties.
a	Dielectric constants (κ vs. <i>T</i> , Curie-Weiss law constants, κ vs. <i>p</i> , κ vs. two- or one-dimensional pressure, κ vs. frequency, phase diagram in regard to <i>p</i> and E_{bias}).
b	Nonlinear dielectric properties (effect of E_{bias} on κ ; values of ξ and ζ).
c	Spontaneous polarization and coercive field (or critical field for antiferroelectrics).
d	Pyroelectric and electrocaloric effect.
6	Thermal properties.
a	Heat capacity, transition heat, transition entropy.
b	Thermal conductivity.
7	Electromechanical properties.
a	Piezoelectricity.
b	Electrostriction.
c	Nonlinear electromechanical properties.

(continued)

Table IF-1 (continued)

Subsection	Information
8	Elastic properties.
a	Elastic compliances and stiffnesses (including data on acoustic surface wave).
b	Nonlinear elastic properties.
9	Optical properties.
a	Refractive indices, birefringence, reflection, absorption (infrared region, visible region, ultraviolet region).
b	Electrooptic effect.
c	Piezooptic effect (photoelastic effect).
d	Optical activity (rotatory power), Faraday effect.
e	Nonlinear optical properties.
10	Properties studied by light scattering.
a	Raman scattering.
b	Brillouin scattering and Rayleigh scattering. (Elastic constants are given in 8a.)
11	Electrical conduction (conductivity, breakdown strength, thermoelectric effect, photoconductivity and photoemission, superconductivity, band structure).
12	Magnetic properties (magnetic susceptibility, spontaneous magnetization, magnetic structure, magnetoelectric effect).
13	Properties studied by magnetic resonance and Mössbauer effect.
a	NMR.
b	ESR and ENDOR.
c	Mössbauer effect.
14	Diffraction phenomena related with secondary structures and local structures.
a	Bragg reflections due to structural modulations.
b	Diffuse or inelastic scattering.
c	EXAFS.
15	Domains.
a	Domain structure.
b	Effects of electric field and mechanical stress.
16	Miscellanea (thin layer, surface layer, radiation damage, plasticity, dislocation, etchant, point defects, twin structure, stripe pattern, paraelectric resonance).

Table IF-2. Two-dimensional survey of contained data

This table indicates the pages where the required data for special properties and individual substances can be found. All the substances appearing in Subvolume III/36C are given along the ordinate and properties along the abscissa. More detailed information on the properties can be found in Table IF-1. Abbreviations in this table: [F]: ferroelectric. [(F)]: possibility of ferroelectricity. [A]: antiferroelectric. [(A)]: possibility of antiferroelectricity.

















No.	Substance	Page	Fundamentals	Material preparation	Crystal structure	Lattice distortion	Dielectric properties	Thermal properties	Electromechanical	Elastic properties	Optical properties	Light scattering	Conduction	Magnetism	NMR, ESR	Local structures	Domains	Miscellanea
Organic crystals																		
50 SC(NH₂)₂ family																		
50A Pure compound																		
1	SC(NH ₂) ₂ [F]	50A-1	•	•	•	•	•	•		•	•	•	•		•	•	•	•
50B Solid solution																		
1	SC(NH ₂) ₂ -OC(NH ₂) ₂	50B-1	•				•				•					•		
51 CCl₃CONH₂																		
51A Pure compound																		
1	CCl ₃ CONH ₂ [F]	51A-1	•	•	•		•	•				•			•			
52 Cu(HCOO)₂·4H₂O																		
52A Pure compound																		
1	Cu(HCOO) ₂ ·4H ₂ O [A]	52A-1	•	•	•	•	•	•		•	•	•	•	•	•			
53 N(CH₃)₄HgCl₃ family																		
53A Pure compounds																		
1	N(CH ₃) ₄ CdBr ₃ [F]	53A-1	•	•	•		•											
2	N(CH ₃) ₄ HgCl ₃ [F]	53A-2	•	•	•		•					•					•	
3	N(CH ₃) ₄ HgBr ₃ [F]	53A-3	•	•	•		•											
4	N(CH ₃) ₄ HgBrI ₂	53A-4	•		•		•				•							
5	P(CH ₃) ₄ HgBr ₃ [F]	53A-5	•	•			•											
6	N(CH ₃) ₄ HgI ₃ [F]	53A-6	•	•	•		•				•							
54 CH₃NH₃AlCl₄ family																		
54A Pure compounds																		
1	CH ₃ NH ₃ AlCl ₄ [F]	54A-1	•	•	•		•											

No.	Substance	Page	Fundamentals	Material preparation	Crystal structure	Lattice distortion	Dielectric properties	Thermal properties	Electromechanical	Elastic properties	Optical properties	Light scattering	Conduction	Magnetism	NMR, ESR	Local structures	Domains	Miscellaneous
2	$(\text{CH}_3\text{NH}_3)_2\text{AlCl}_5 \cdot 6\text{H}_2\text{O}$	54A-2	•					•										
3	$\text{CH}_3\text{NH}_3\text{AlBr}_4$ [F]	54A-3	•	•	•		•											
55 $[(\text{CH}_3)_2\text{NH}_2]_2\text{CoCl}_4$ family 55A Pure compounds																		
1	$[(\text{CH}_3)_2\text{NH}_2]_2\text{CoCl}_4$ [(F)]	55A-1	•	•	•	•	•	•			•	•	•					•
2	$[(\text{CH}_3)_2\text{NH}_2]_2\text{CuCl}_4$ [F]	55A-2	•	•		•	•	•			•	•						
3	$[(\text{CH}_3)_2\text{NH}_2]_2\text{ZnCl}_4$	55A-3	•	•	•	•		•			•	•			•			
56 $[(\text{CH}_3)_2\text{NH}_2]_3\text{Sb}_2\text{Cl}_9$ family 56A Pure compounds																		
1	$[(\text{CH}_3)_2\text{NH}_2]_3\text{Sb}_2\text{Cl}_9$ [F]	56A-1	•	•	•	•	•	•			•	•			•			
2	$[(\text{CH}_3)_3\text{NH}]_3\text{Sb}_2\text{Cl}_9$ [F]	56A-2	•	•	•	•	•	•			•	•			•	•	•	
3	$[(\text{CH}_3)_2\text{NH}_2]_3\text{Sb}_2\text{Br}_9$ [F]	56A-3	•	•	•	•	•	•			•	•			•			
4	$(\text{CH}_3\text{NH}_3)_3\text{Sb}_2\text{Br}_9$ [F]	56A-4	•	•	•	•	•	•			•				•			
5	$(\text{CH}_3\text{NH}_3)_3\text{Bi}_2\text{Br}_9$ [F]	56A-5	•	•	•	•	•			•	•	•			•		•	
57 $(\text{CH}_3\text{NH}_3)_5\text{Bi}_2\text{Cl}_{11}$ family 57A Pure compounds																		
1	$(\text{CH}_3\text{NH}_3)_5\text{Bi}_2\text{Cl}_{11}$ [F]	57A-1	•	•	•	•	•	•		•	•	•			•		•	•
2	$(\text{CH}_3\text{NH}_3)_5\text{Bi}_2\text{Br}_{11}$ [F]	57A-2	•	•	•	•	•	•		•	•	•			•		•	•
58 DSP $(\text{Ca}_2\text{Sr}(\text{CH}_3\text{CH}_2\text{COO})_6)$ family 58A Pure compounds																		
1	$\text{Ca}_2\text{Sr}(\text{CH}_3\text{CH}_2\text{COO})_6$ [F]	58A-1	•	•	•	•	•	•	•	•	•	•			•	•	•	•
2	$\text{Ca}_2\text{Ba}(\text{CH}_3\text{CH}_2\text{COO})_6$ [F]	58A-2	•	•	•	•	•	•		•			•		•	•		
3	$\text{Ca}_2\text{Pb}(\text{CH}_3\text{CH}_2\text{COO})_6$ [F]	58A-3	•	•	•	•	•	•	•	•	•	•			•	•		

No.	Substance	Page	Fundamentals	Material preparation	Crystal structure	Lattice distortion	Dielectric properties	Thermal properties	Electromechanical	Elastic properties	Optical properties	Light scattering	Conduction	Magnetism	NMR, ESR	Local structures	Domains	Miscellanea
58B Solid solutions																		
1	$\text{Ca}_2\text{Sr}(\text{CH}_3\text{CH}_2\text{COO})_6 - \text{Ca}_2\text{Ba}(\text{CH}_3\text{CH}_2\text{COO})_6$	58B-1					•											
2	$\text{Ca}_2\text{Sr}(\text{CH}_3\text{CH}_2\text{COO})_6 - \text{Ca}_2\text{Pb}(\text{CH}_3\text{CH}_2\text{COO})_6$	58B-2	•	•		•												
3	$\text{Ca}_2\text{Ba}(\text{CH}_3\text{CH}_2\text{COO})_6 - \text{Ca}_2\text{Pb}(\text{CH}_3\text{CH}_2\text{COO})_6$	58B-3	•				•											
4	$\text{Ca}_2\text{Sr}(\text{CH}_3\text{CH}_2\text{COO})_{6(1-x)}(\text{CH}_3\text{COO})_{6x}$	58B-4	•			•	•											
5	$\text{Ca}_2\text{Sr}(\text{CH}_3\text{CH}_2\text{COO})_{6(1-x)}(\text{HCF}_2\text{COO})_{6x}$	58B-5	•				•								•			
6	$\text{Ca}_2\text{Sr}(\text{CH}_3\text{CH}_2\text{COO})_{6(1-x)}(\text{HCF}_2\text{CF}_2\text{COO})_{6x}$	58B-6	•				•											
7	$\text{Ca}_2\text{Pb}(\text{CH}_3\text{CH}_2\text{COO})_{6(1-x)}(\text{CH}_3\text{COO})_{6x}$	58B-7	•				•											
59 $(\text{CH}_2\text{ClCOO})_2\text{H}\cdot\text{NH}_4$ family																		
59A Pure compounds																		
1	$\text{CH}_2\text{ClCOONH}_4$ [F]	59A-1	•	•	•		•											
2	$(\text{CH}_2\text{ClCOO})_2\text{H}\cdot\text{NH}_4$ [F]	59A-2	•	•	•		•	•			•				•			
60 $(\text{NH}_2\text{CH}_2\text{COOH})_3\cdot\text{H}_2\text{SO}_4$ family																		
60A Pure compounds																		
1	$(\text{NH}_2\text{CH}_2\text{COOH})_3\cdot\text{H}_2\text{SO}_4$ [F]	60A-1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
2	$(\text{NH}_2\text{CH}_2\text{COOH})_3\cdot\text{H}_2\text{SeO}_4$ [F]	60A-2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
3	$(\text{NH}_2\text{CH}_2\text{COOH})_3\cdot\text{H}_2\text{BeF}_4$ [F]	60A-3	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
60B Solid solutions																		
1	$(\text{NH}_2\text{CH}_2\text{COOH})_3\cdot\text{H}_2\text{SO}_4 - (\text{NH}_2\text{CH}_2\text{COOH})_3\cdot\text{H}_2\text{SeO}_4$	60B-1	•	•			•	•			•		•					•
2	$(\text{NH}_2\text{CH}_2\text{COOH})_3\cdot\text{H}_2\text{SO}_4 - (\text{NH}_2\text{CH}_2\text{COOH})_3\cdot\text{H}_2\text{BeF}_4$	60B-2	•	•	•		•				•							

No.	Substance	Page	Fundamentals	Material preparation	Crystal structure	Lattice distortion	Dielectric properties	Thermal properties	Electromechanical	Elastic properties	Optical properties	Light scattering	Conduction	Magnetism	NMR, ESR	Local structures	Domains	Miscellaneous
3	$(\text{NH}_2\text{CH}_2\text{COOH})_3 \cdot \text{H}_2\text{SeO}_4 - (\text{NH}_2\text{CH}_2\text{COOH})_3 \cdot \text{H}_2\text{BeF}_4$	60B-3					•											
61	$\text{NH}_2\text{CH}_2\text{COOH} \cdot \text{AgNO}_3$																	
61A	Pure compound																	
1	$\text{NH}_2\text{CH}_2\text{COOH} \cdot \text{AgNO}_3$ [F]	61A-1	•	•	•	•	•		•						•			
62	$(\text{NH}_2\text{CH}_2\text{COOH})_2 \cdot \text{HNO}_3$																	
62A	Pure compound																	
1	$(\text{NH}_2\text{CH}_2\text{COOH})_2 \cdot \text{HNO}_3$ [F]	62A-1	•	•	•	•	•	•	•	•	•	•			•		•	•
63	$(\text{NH}_2\text{CH}_2\text{COOH})_2 \cdot \text{MnCl}_2 \cdot 2\text{H}_2\text{O}$																	
63A	Pure compound																	
1	$(\text{NH}_2\text{CH}_2\text{COOH})_2 \cdot \text{MnCl}_2 \cdot 2\text{H}_2\text{O}$ [F]	63A-1	•	•	•		•											
64	$(\text{CH}_3\text{NHCH}_2\text{COOH})_3 \cdot \text{CaCl}_2$ family																	
64A	Pure compounds																	
1	$(\text{CH}_3\text{NHCH}_2\text{COOH})_3 \cdot \text{CaCl}_2$ [F]	64A-1	•	•	•	•	•	•		•	•	•			•			
2	$(\text{CH}_3\text{NHCH}_2\text{COOH})_3 \cdot \text{CaBr}_2$ [F]	64A-2	•	•			•								•			
65	$(\text{CH}_3)_3\text{NCH}_2\text{COO} \cdot \text{H}_3\text{PO}_4$ family																	
65A	Pure compounds																	
1	$(\text{CH}_3)_3\text{NCH}_2\text{COO} \cdot \text{H}_3\text{PO}_4$ [A]	65A-1	•	•	•	•	•	•		•	•	•	•		•	•		
2	$(\text{CH}_3)_3\text{NCH}_2\text{COO} \cdot \text{H}_3\text{AsO}_4$ [F]	65A-2	•	•	•		•	•		•	•	•			•	•		•
3	$(\text{CH}_3)_3\text{NCH}_2\text{COO} \cdot \text{H}_3\text{PO}_3$ [F]	65A-3	•	•	•	•	•	•		•	•	•	•		•			

No.	Substance	Page	Fundamentals	Material preparation	Crystal structure	Lattice distortion	Dielectric properties	Thermal properties	Electromechanical	Elastic properties	Optical properties	Light scattering	Conduction	Magnetism	NMR, ESR	Local structures	Domains	Miscellanea
65B Solid solutions																		
1	$(\text{CH}_3)_3\text{NCH}_2\text{COO}\cdot\text{H}_3\text{PO}_4^-$ $(\text{CH}_3)_3\text{NCH}_2\text{COO}\cdot\text{H}_3\text{AsO}_4$	65B-1	•		•		•									•		
2	$(\text{CH}_3)_3\text{NCH}_2\text{COO}\cdot\text{H}_3\text{PO}_4^-$ $(\text{CH}_3)_3\text{NCH}_2\text{COO}\cdot\text{H}_3\text{PO}_3$	65B-2	•		•		•					•				•		
66 $(\text{CH}_3)_3\text{NCH}_2\text{COO}\cdot\text{CaCl}_2\cdot 2\text{H}_2\text{O}$																		
66A Pure compound																		
1	$(\text{CH}_3)_3\text{NCH}_2\text{COO}\cdot\text{CaCl}_2\cdot 2\text{H}_2\text{O}$ [F]	66A-1	•	•	•	•	•	•		•	•	•			•	•		
67 Rochelle salt $(\text{NaKC}_4\text{H}_4\text{O}_6\cdot 4\text{H}_2\text{O})$ family																		
67A Pure compounds																		
1	$\text{NaKC}_4\text{H}_4\text{O}_6\cdot 4\text{H}_2\text{O}$ [F]	67A-1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
2	$\text{NaNH}_4\text{C}_4\text{H}_4\text{O}_6\cdot 4\text{H}_2\text{O}$ [(F)]	67A-2	•	•	•	•	•		•	•	•				•	•	•	
3	$\text{NaRbC}_4\text{H}_4\text{O}_6\cdot 4\text{H}_2\text{O}$	67A-3	•		•		•											
67B Solid solution																		
1	$\text{NaKC}_4\text{H}_4\text{O}_6\cdot 4\text{H}_2\text{O}-$ $\text{NaNH}_4\text{C}_4\text{H}_4\text{O}_6\cdot 4\text{H}_2\text{O}$	67B-1	•	•	•	•	•	•	•	•	•	•			•	•		
68 $\text{LiNH}_4\text{C}_4\text{H}_4\text{O}_6\cdot \text{H}_2\text{O}$ family																		
68A Pure compounds																		
1	$\text{LiNH}_4\text{C}_4\text{H}_4\text{O}_6\cdot \text{H}_2\text{O}$ [F]	68A-1	•	•	•	•	•	•	•	•	•	•			•		•	
2	$\text{LiTiC}_4\text{H}_4\text{O}_6\cdot \text{H}_2\text{O}$ [F]	68A-2	•	•	•		•	•	•	•	•	•			•			
3	$\text{LiKC}_4\text{H}_4\text{O}_6\cdot \text{H}_2\text{O}$	68A-3	•	•	•							•			•			
68B Solid solutions																		
1	$\text{LiNH}_4\text{C}_4\text{H}_4\text{O}_6\cdot \text{H}_2\text{O}-\text{LiTiC}_4\text{H}_4\text{O}_6\cdot \text{H}_2\text{O}$	68B-1		•			•			•					•			
2	$\text{LiNH}_4\text{C}_4\text{H}_4\text{O}_6\cdot \text{H}_2\text{O}-\text{LiRbC}_4\text{H}_4\text{O}_6\cdot \text{H}_2\text{O}$	68B-2					•			•								
3	$\text{LiNH}_4\text{C}_4\text{H}_4\text{O}_6\cdot \text{H}_2\text{O}-\text{LiCsC}_4\text{H}_4\text{O}_6\cdot \text{H}_2\text{O}$	68B-3					•											

No.	Substance	Page	Fundamentals	Material preparation	Crystal structure	Lattice distortion	Dielectric properties	Thermal properties	Electromechanical	Elastic properties	Optical properties	Light scattering	Conduction	Magnetism	NMR, ESR	Local structures	Domains	Miscellaneous
69	C₅H₆NBF₄																	
69A	Pure compound																	
1	C ₅ H ₆ NBF ₄ [F]	69A-1	•		•		•	•							•	•		
70	3C₆H₄(OH)₂·CH₃OH																	
70A	Pure compound																	
1	3C ₆ H ₄ (OH) ₂ ·CH ₃ OH [F]	70A-1	•	•	•		•	•			•				•			
Liquid crystals																		
71	Ferroelectric and antiferroelectric liquid crystals																	
71A	Ferroelectric liquid crystals																	
1	DOBAMBC and analogues																	
(A)	C _n H _{2n+1} O-  -CH=N-  -CH=CHCOOCH ₂ CH(CH ₃)C ₂ H ₅ [F]	71A-1(A)	•		•		•	•	•		•		•	•	•	•		
(B)	C ₂ H _{2n+1} O-  -CH=N-  -CH=CHCOOCH(CH ₃)C _m H _{2m+1} [F]	71A-1(B)	•		•		•	•										
(C)	C _n H _{2n+1} O-  -CH=N-  -COOCH ₂ CH(CH ₃)C ₂ H ₅ [F]	71A-1(C)	•															
2	AOBACPC and analogues																	
(A)	C _n H _{2n+1} O-  -CH=N-  -CH=CHCOOCH ₂ CHClCH ₃ [F]	71A-2(A)	•		•		•	•			•							
(B)	C _n H _{2n+1} O-  -CH=N-  -CH=CHCOOCH ₂ CHClCH(CH ₃)C ₂ H ₅ [F]	71A-2(B)	•				•											
(C)	C _n H _{2n+1} O-  -CH=N-  -CH=C(CH ₃)COOCH ₂ CHClCH(CH ₃)C ₂ H ₅ [F]	71A-2(C)	•															
(D)	C _n H _{2n+1} O-  -CH=N-  -CH=CHCOOCH ₂ CHBrCH(CH ₃)C ₂ H ₅ [F]	71A-2(D)	•															
(E)	C _n H _{2n+1} O-  -CH=N-  -CH=CHCOOCH ₂ CHClCH ₂ CH(CH ₃) ₂ [F]	71A-2(E)	•															















No.	Substance	Page	Fundamentals	Material preparation	Crystal structure	Lattice distortion	Dielectric properties	Thermal properties	Electromechanical	Elastic properties	Optical properties	Light scattering	Conduction	Magnetism	NMR, ESR	Local structures	Domains	Miscellanea
(F)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{CH}=\text{N}-\text{C}_6\text{H}_4-\text{CH}=\text{CHCOOCH}_2\text{CHClCH}(\text{CH}_3)_2$ [F]	71A-2(F)	•															
(G)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{CH}=\text{N}-\text{C}_6\text{H}_4-\text{CH}=\text{CHCOOCH}_2\text{CHClCH}_2-\text{C}_6\text{H}_5$	71A-2(G)	•															
(H)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{CH}=\text{N}-\text{C}_6\text{H}_4-\text{CH}=\text{CHCOOCH}_2\text{CH}_2\text{CHClCH}_3$ [F]	71A-2(H)	•															
(I)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{CH}=\text{N}-\text{C}_6\text{H}_4-\text{CH}=\text{C}(\text{CN})\text{COOCH}_2\text{CH}(\text{CH}_3)\text{C}_2\text{H}_5$ [F]	71A-2(I)	•		•													
(J)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{CH}=\text{N}-\text{C}_6\text{H}_4-\text{CH}=\text{CClCOOCH}_2\text{CH}(\text{CH}_3)\text{C}_2\text{H}_5$ [F]	71A-2(J)	•															
3	HAOBAMBC and analogues																	
(A)	$C_nH_{2n+1}O-\text{C}_6\text{H}_3(\text{OH})-\text{CH}=\text{N}-\text{C}_6\text{H}_4-\text{CH}=\text{CHCOO}-\text{R}$ [F]	71A-3(A)	•				•											
(B)	$C_2H_5\text{CH}(\text{CH}_3)(\text{CH}_2)_m\text{O}-\text{C}_6\text{H}_3(\text{OH})-\text{CH}=\text{N}-\text{C}_6\text{H}_4-\text{CH}=\text{C}(\text{CH}_3)\text{COOCH}_2\text{CHClCH}(\text{CH}_3)\text{C}_2\text{H}_5$ [F]	71A-3(B)	•		•						•							
(C)	$C_nH_{2n+1}O-\text{C}_6\text{H}_3(\text{OH})-\text{CH}=\text{N}-\text{C}_6\text{H}_4-\text{CH}=\text{CHCOOCH}_2\text{CHClCH}(\text{CH}_3)\text{C}_2\text{H}_5$ [F]	71A-3(C)	•				•											
(D)	$C_nH_{2n+1}O-\text{C}_6\text{H}_3(\text{OH})-\text{CH}=\text{N}-\text{C}_6\text{H}_4-\text{CH}=\text{C}(\text{CH}_3)\text{COOCH}_2\text{CHClCH}(\text{CH}_3)\text{C}_2\text{H}_5$ [F]	71A-3(D)	•															
(E)	$C_nH_{2n+1}O-\text{C}_6\text{H}_3(\text{OH})-\text{CH}=\text{N}-\text{C}_6\text{H}_4-\text{CH}=\text{CHCOOCH}_2\text{CHBrCH}(\text{CH}_3)\text{C}_2\text{H}_5$ [F]	71A-3(E)	•				•											
(F)	$C_nH_{2n+1}O-\text{C}_6\text{H}_3(\text{OH})-\text{CH}=\text{N}-\text{C}_6\text{H}_4-\text{CH}=\text{CHCOOCH}_2\text{CHClCH}_2\text{CH}(\text{CH}_3)_2$ [F]	71A-3(F)	•															
(G)	$C_nH_{2n+1}O-\text{C}_6\text{H}_3(\text{OH})-\text{CH}=\text{N}-\text{C}_6\text{H}_4-\text{CH}=\text{CHCOOCH}_2\text{CHClCH}_2-\text{C}_6\text{H}_5$ [F]	71A-3(G)	•															
(H)	$C_nH_{2n+1}O-\text{C}_6\text{H}_3(\text{OH})-\text{CH}=\text{N}-\text{C}_6\text{H}_4-\text{CH}=\text{CHCOOCH}_2\text{CH}_2\text{CHClCH}_3$ [F]	71A-3(H)	•															
4	B-8 and analogues																	
(A)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_5-\text{COOCH}_2\text{CH}(\text{CH}_3)\text{C}_2\text{H}_5$ [F]	71A-4(A)	•		•		•				•							

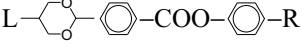
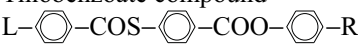
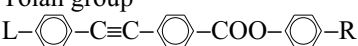
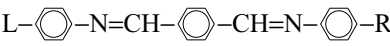
No.	Substance	Page	Fundamentals	Material preparation	Crystal structure	Lattice distortion	Dielectric properties	Thermal properties	Electromechanical	Elastic properties	Optical properties	Light scattering	Conduction	Magnetism	NMR, ESR	Local structures	Domains	Miscellanea
(B)	$C_nH_{2n+1}COO-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{COOCH}_2\text{CH}(\text{CH}_3)\text{C}_2\text{H}_5$ [F]	71A-4(B)	•		•		•											
5	3M2CPAOB and analogues																	
(A)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{OCOCHClCH}(\text{CH}_3)\text{C}_2\text{H}_5$ [F]	71A-5(A)	•				•											
(B)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{OCOCHBrCH}(\text{CH}_3)\text{C}_2\text{H}_5$ [F]	71A-5(B)	•															
(C)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{OCOCHClCH}(\text{CH}_3)_2$ [F]	71A-5(C)	•				•											
(D)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{OCOCHBrCH}(\text{CH}_3)_2$ [F]	71A-5(D)	•															
(E)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{OCOCHClCH}_2\text{CH}(\text{CH}_3)_2$ [F]	71A-5(E)	•															
(F)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{OCOCH}(\text{CH}_3)\text{C}_2\text{H}_5$ [F]	71A-5(F)	•															
(G)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{OCOCHClC}_2\text{H}_5$ [F]	71A-5(G)	•															
6	4'-((S)-2-methylbutyloxy)phenyl-4-alkoxy-benzoate and analogues																	
(A)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{OCH}_2\text{CH}(\text{CH}_3)\text{C}_2\text{H}_5$ [F]	71A-6(A)	•		•		•	•										
(B)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{O}(\text{CH}_2)_3\text{CH}(\text{CH}_3)\text{C}_2\text{H}_5$ [F]	71A-6(B)	•		•			•										
(C)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{OCO}-\text{C}_6\text{H}_4-\text{O}(\text{CH}_2)_5\text{CH}(\text{CH}_3)\text{C}_2\text{H}_5$ [F]	71A-6(C)	•															
(D)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{O}(\text{CH}_2)_2\text{CH}(\text{CH}_3)(\text{CH}_2)_3\text{CH}(\text{CH}_3)_2$ [F]	71A-6(D)			•		•											
(E)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{OCO}-\text{C}_6\text{H}_4-\text{O}(\text{CH}_2)_2\text{CH}(\text{CH}_3)(\text{CH}_2)_3\text{CH}(\text{CH}_3)_2$ [F]	71A-6(E)					•											
(F)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{OCH}_2\text{CH}(\text{CH}_3)\text{OC}_m\text{H}_{2m+1}$ [F]	71A-6(F)			•		•		•									
(G)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{O}(\text{CH}_2)_m\text{OCH}_2\text{CH}(\text{CH}_3)\text{OC}_2\text{H}_5$ [F]	71A-6(G)			•		•											

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(H)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{COO}-(\text{CH}_2)_2\text{CH}(\text{CH}_3)(\text{CH}_2)_3\text{CH}(\text{CH}_3)_2$ [F]	71A-6(H)	•		•		•	•										
(I)	$C_{10}H_{21}O-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{OCH}_2\text{CHCH}(\text{C}_3\text{H}_7)$ [F]	71A-6(I)			•		•			•								
7	4-(2-methylbutyloxy)phenyl-4'- <i>n</i> -alkoxy-cinnamate and analogues																	
(A)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{CH}=\text{CHCOO}-\text{C}_6\text{H}_4-\text{OCH}_2\text{CH}(\text{CH}_3)\text{C}_2\text{H}_5$	71A-7(A)	•					•										
(B)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{CH}=\text{CHCOO}-\text{C}_6\text{H}_4-\text{COOCH}_2\text{CH}(\text{CH}_3)\text{C}_2\text{H}_5$	71A-7(B)	•					•										
(C)	$C_{11}H_{23}O-\text{C}_6\text{H}_4-\text{CH}=\text{CHCOO}-\text{C}_6\text{H}_4-\text{OOCCHClCH}(\text{CH}_3)\text{C}_2\text{H}_5$ [F]	71A-7(C)	•		•		•											
(D)	$C_{12}H_{25}O-\text{C}_6\text{H}_4-\text{CH}=\text{CHCOO}-\text{C}_6\text{H}_4-\text{COOCH}_2\text{CHClCH}_2\text{CH}(\text{CH}_3)_2$ [F]	71A-7(D)	•		•		•											
(E)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{CH}=\text{CHCOO}-\text{C}_6\text{H}_4-\text{OOCCHClCH}_2\text{CH}(\text{CH}_3)_2$ [F]	71A-7(E)	•		•		•											
8	8SI* and analogues																	
(A)	$C_nH_{2n+1}-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{CH}_2\text{CH}(\text{CH}_3)\text{C}_2\text{H}_5$ [F]	71A-8(A)	•		•		•	•										
(B)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{CH}_2\text{CH}(\text{CH}_3)\text{C}_2\text{H}_5$ [F]	71A-8(B)	•		•		•											
(C)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{COOCH}(\text{CH}_3)\text{COOC}_m\text{H}_{2m+1}$ [F]	71A-8(C)					•											
(D)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{COOCH}_2\text{CH}(\text{CH}_3)\text{COOC}_m\text{H}_{2m+1}$ [F]	71A-8(D)					•											
(E)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{COOCH}(\text{CH}_3)\text{CH}_2\text{COOC}_m\text{H}_{2m+1}$ [F]	71A-8(E)					•											
(F)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{COOCH}(\text{CH}_3)\text{CH}_2\text{OC}_m\text{H}_{2m+1}$ [F]	71A-8(F)					•											
(G)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{COOCH}(\text{CH}_3)\text{CH}_2\text{C}(\text{CH}_3)_2\text{OH}$ [F]	71A-8(G)					•											

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(H)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{OCH}(\text{CH}_3)\text{COOC}_m\text{H}_{2m+1}$ [F]	71A-8(H)					•											
(I)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{OCH}(\text{CH}_3)\text{C}_m\text{H}_{2m+1}$ [F]	71A-8(I)	•		•		•											
(J)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{OCO}-\text{C}_6\text{H}_4-\text{OCH}(\text{CH}_3)\text{C}_m\text{H}_{2m+1}$ [F]	71A-8(J)	•		•		•											
(K)	$C_nH_{2n+1}-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{OCO}-\text{C}_6\text{H}_4-\text{OCH}(\text{CH}_3)\text{C}_6\text{H}_{13}$ [F]	71A-8(K)	•															
(L)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{CH}_2\text{O}-\text{C}_6\text{H}_4-\text{COOCH}(\text{CH}_3)\text{COOCH}_3$ [F]	71A-8(L)					•											
(M)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{CH}_2\text{O}-\text{C}_6\text{H}_4-\text{COOCH}_2\text{CH}(\text{CH}_3)\text{COOCH}_3$ [F]	71A-8(M)					•											
(N)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{CH}_2\text{O}-\text{C}_6\text{H}_4-\text{COOCH}(\text{CH}_3)\text{CH}_2\text{COOCH}_3$ [F]	71A-8(N)					•											
(O)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{CH}_2\text{O}-\text{C}_6\text{H}_4-\text{COOCH}(\text{CH}_3)\text{CH}_2\text{OC}_4\text{H}_9$ [F]	71A-8(O)					•											
(P)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{CH}_2\text{O}-\text{C}_6\text{H}_4-\text{COOCH}(\text{CH}_3)\text{CH}_2\text{C}(\text{CH}_3)_2\text{OH}$ [F]	71A-8(P)					•											
9	<i>p</i> - <i>n</i> -alkylphenyl ester of 4'-(1-methylheptyloxy)-biphenyl-4-carboxylic acid and analogues																	
(A)	$C_nH_{2n+1}-\text{C}_6\text{H}_4-\text{OCO}-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{OCH}(\text{CH}_3)\text{C}_6\text{H}_{13}$ [F]	71A-9(A)	•		•		•											
(B)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{OCO}-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{OCH}(\text{CH}_3)\text{C}_m\text{H}_{2m+1}$ [F]	71A-9(B)	•		•		•											
(C)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{OCO}-\text{C}_6\text{H}_4-\text{OCO}-\text{C}_6\text{H}_4-\text{O}(\text{CH}_2)_2\text{CH}(\text{CH}_3)(\text{CH}_2)_3\text{CH}(\text{CH}_3)_2$ [F]	71A-9(C)	•				•	•										
(D)	$C_nH_{2n+1}-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{OCH}(\text{CH}_3)\text{C}_6\text{H}_{13}$ [F]	71A-9(D)	•															
(E)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{OCH}(\text{CH}_3)\text{C}_6\text{H}_{13}$ [F]	71A-9(E)	•															
(F)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{C}_6\text{H}_3(\text{NO}_2)-\text{OCH}(\text{CH}_3)\text{C}_6\text{H}_{13}$	71A-9(F)			•													

No.	Substance	Page	Fundamentals	Material preparation	Crystal structure	Lattice distortion	Dielectric properties	Thermal properties	Electromechanical	Elastic properties	Optical properties	Light scattering	Conduction	Magnetism	NMR, ESR	Local structures	Domains	Miscellanea
10	ETFPPOPb and analogues																	
(A)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{COOCH}(\text{CF}_3)\text{CH}_2\text{COOC}_2\text{H}_5$ [F]	71A-10(A)			•		•											
(B)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{COOCH}(\text{CF}_3)\text{CH}_2\text{CH}_2-\text{C}_6\text{H}_5$ [F]	71A-10(B)					•											
(C)	$C_nH_{2n+1}O-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{COOCH}_2\text{CF}(\text{CH}_3)\text{COOC}_2\text{H}_5$ [F]	71A-10(C)					•											
(D)	$(\text{CH}_3)_2\text{CHCHClCOO}-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{OOC}-\text{C}_6\text{H}_4-\text{R}$ [F]	71A-10(D)	•		•		•											
(E)	$(\text{CH}_3)_2\text{CHCH}_2\text{CHClCOO}-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{OOC}-\text{C}_6\text{H}_4-\text{OC}_n\text{H}_{2n+1}$ [F]	71A-10(E)	•															
(F)	$\text{C}_2\text{H}_5\text{CH}(\text{CH}_3)\text{CHClCOO}-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{OOC}-\text{C}_6\text{H}_4-\text{OC}_n\text{H}_{2n+1}$ [F]	71A-10(F)	•															
(G)	$(\text{CH}_3)_2\text{CHCHClCOO}-\text{C}_6\text{H}_4-\text{C}_6\text{H}_4-\text{R}$ [F]	71A-10(G)	•															
(H)	$(\text{CH}_3)_2\text{CHCHClCOO}-\text{C}_6\text{H}_4-\text{OOC}-\text{C}_6\text{H}_4-\text{R}$ [F]	71A-10(H)	•															
(I)	$\text{C}_2\text{H}_5\text{CH}(\text{CH}_3)\text{CHClCOO}-\text{C}_6\text{H}_4-\text{OOC}-\text{C}_6\text{H}_4-\text{OC}_n\text{H}_{2n+1}$ [F]	71A-10(I)	•															
(J)	$(\text{CH}_3)_2\text{CHCH}_2\text{CHClCOO}-\text{C}_6\text{H}_4-\text{OOC}-\text{C}_6\text{H}_4-\text{OC}_n\text{H}_{2n+1}$ [F]	71A-10(J)	•															
(K)	$(\text{CH}_3)_2\text{CHCHClCOO}-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{OOC}-\text{C}_6\text{H}_4-\text{OC}_n\text{H}_{2n+1}$ [F]	71A-10(K)	•															
(L)	$(\text{CH}_3)_2\text{CHCHClCOO}-\text{C}_6\text{H}_4-\text{COO}-\text{R}$ [F]	71A-10(L)	•															
(M)	$(\text{CH}_3)_2\text{CHCHClCOO}-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{N} \begin{smallmatrix} \diagup \\ \diagdown \end{smallmatrix} \text{C}_n\text{H}_{2n+1}$ [F]	71A-10(M)	•															
11	Polymer ferroelectric liquid crystal																	
	$(-\text{CH}_2\text{CH}-)_x$ $\text{COO}-(\text{CH}_2)_n-\text{O}-\text{C}_6\text{H}_4-\text{COO}-\text{C}_6\text{H}_4-\text{OCH}_2\text{CH}(\text{CH}_3)\text{C}_2\text{H}_5$	71A-11	•		•													

No.	Substance	Page	Fundamentals	Material preparation	Crystal structure	Lattice distortion	Dielectric properties	Thermal properties	Electromechanical	Elastic properties	Optical properties	Light scattering	Conduction	Magnetism	NMR, ESR	Local structures	Domains	Miscellanea
71B Antiferroelectric liquid crystals																		
1	MHPOBC and analogues L-  -  -COO-  -R																	
(A)	L: C _n H _{2n+1} O, R: COOCH(CH ₃)C _m H _{2m+1} [F,A]	71B-1(A)	•		•		•	•			•	•					•	•
(B)	L: C _n H _{2n+1} , R: COOCH(CH ₃)C _m H _{2m+1} [(F,A)]	71B-1(B)	•				•											
(C)	L: C _n H _{2n+1} COO, R: COOCH(CH ₃)C _m H _{2m+1} [(F),A]	71B-1(C)	•		•		•	•			•							
(D)	L: C _n H _{2n+1} OCO, R: COOCH(CH ₃)C _m H _{2m+1} [F]	71B-1(D)	•				•				•							
(E)	L: C _n H _{2n+1} O, R: COCH(CH ₃)C _m H _{2m+1} [F,(A)]	71B-1(E)	•		•		•				•							
(F)	L: C ₈ H ₁₇ O, R: COOCH(CH ₃)CH ₂ COOCH ₃ [(F),A]	71B-1(F)	•		•		•											
(G)	L: C _n H _{2n+1} O, R: COOCH(CF ₃)C _m H _{2m+1} [A]	71B-1(G)	•		•		•				•							
2	10B1M7 and analogues L-  -COO-  -  -R																	
(A)	L: C _n H _{2n+1} O, R: COOCH(CH ₃)C _m H _{2m+1} [F,A]	71B-2(A)	•		•			•										
(B)	L: CH ₂ CHCOOC ₁₁ H ₂₂ O, R: COOCH(CH ₃)C _m H _{2m+1} [(F,A)]	71B-2(B)	•		•			•										
3	MHFPDBC group L-  -  -COO-  -R																	
	L: C _n H _{2n+1} , R: COOCCH(CH ₃)C ₆ H ₁₃	71B-3	•				•											
4	12F1M7 and analogues L-  -  -COO-  -R																	
(A)	L: C ₁₂ H ₂₅ O, R: COOCH(CH ₃)C ₆ H ₁₃	71B-4(A)	•								•							
(B)	L: C _n H _{2n+1} O, R: COOCH(CF ₃)C _m H _{2m+1} [(F,A)]	71B-4(B)	•		•												•	
5	TFMHPDOPB L-  -  -COO-  -R																	
	L: C ₁₂ H ₂₅ O, R: COOCH(CF ₃)C ₆ H ₁₃ [A]	71B-5	•		•		•	•			•	•						

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6	TFMHPODB 																	
	L: C ₈ H ₁₇ O, R: COOCH(CF ₃)C ₆ H ₁₃ [A]	71B-6	•								•							
7	Thiobenzoate compound 																	
	L: C ₁₂ H ₂₅ O, R: COOCH(CH ₃)C ₆ H ₁₃ [F,(A)]	71B-7	•		•		•											
8	Tolan group 																	
	L: C _n H _{2n+1} O, R: COOCH(CH ₃)C ₆ H ₁₃ [F,A]	71B-8	•				•				•							
9	MHTAC 																	
	L: H ₁₃ C ₆ CH(CH ₃)OCOCH=CH, R: CH=CHCOOCH(CH ₃)C ₆ H ₁₃ [(A)]	71B-9	•		•													
Polymers																		
72 Polymer ferroelectrics																		
1	(CH ₂ CF ₂) _n [F]	72-1	•	•	•		•	•	•	•	•	•						•
2	((CH ₂ CF ₂) _x (CHF·CF ₂) _{1-x}) _n [F]	72-2	•	•	•	•	•	•	•	•	•				•	•		•
3	((CH ₂ CF ₂) _x (CF ₂ CF ₂) _{1-x}) _n [F]	72-3	•		•	•	•	•	•	•								
4	(NH(CH ₂) _{x-1} CO) _n (x = 5, 7, 9, 11) [F]	72-4	•	•	•		•		•	•								•
5	poly-m-Xylylene adipamide [F]	72-5	•				•											
M Miscellaneous crystals																		
M29	H ₂ NCONHNH ₂ ·HCl [(F)]	M29	•	•	•		•				•	•				•		
M30	CaC ₄ H ₄ O ₆ ·4H ₂ O [(F)]	M30	•	•	•	•	•	•			•						•	•
M31	C ₉ H ₁₈ NO [(F)]	M31	•	•	•	•	•	•		•	•	•				•		•
M32	C ₄ [CH ₂ OC ₆ H ₃ (NO ₂) ₂] ₂ [F]	M32	•	•	•		•	•							•			

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