List of Approved Materials for Grant-in-Aid Study June 2016

LN OXYHALIDES:

CeOI	PmOF
CeOBr	PmOI
LnOBr (in PDF as tetragonal)	PmOBr

The following may be submitted if different than what is already in our database:

Formula	PDF#		
ErOCl	00-049-1800	QM=I	R-3m
HoOCl	00-049-1799	QM=I	R-3m
LuOCl	00-035-1344	QM=I	R-3m
PmOCl	00-033-1089	QM=I	P4/nmm
SmOCl	00-012-0790	QM=I	P4/nmm
SmOCl	01-085-0709	QM=I	P4/nmm
TmOCl	00-049-1901	QM=I	R-3m
DyOF	00-033-0524	QM=I	cubic
HoOF	00-005-0548	QM=I	cubic
TbOF	01-085-0851	QM=I	R-3m
DyOI	00-036-0753	QM=I	P4/nmm
EuOI	01-085-0784	QM=I	P4/nmm
LuOI	00-042-0981	QM=I	P4/nmm
CeOBr	00-052-1846	QM=I	P4/nmm
EuBrO	04-009-9658	QM=I	P4/nmm
LuOBr	00-020-0653	QM=I	P4/nmm
LuOBr	00-052-1842	QM=I	R-3m
TmIO	04-007-5179	QM=I	P4/nmm
CeOF	00-022-0168	QM=I	cubic
CeOF	01-075-0249	QM=I	Fm-3m
CeOF	04-001-8458	QM=I	Fm-3m
PrOCl	00-009-0385	QM=I	P4/nmm
PrOCl	04-007-9377	QM=I	P4/nmm

PHOSPHATES:

Experimental patterns to replace the following **PDF** patterns:

$F_5!3H_2O$	00-012-0053	$Zr_{2.25}(PO_4)_3$	00-038-0017
Fe_2F_5	00-012-0054		

Please consult the **PDF** cards for further information about each phase.

AURIVILLIUS PHASES:

$\{Bi_2O_2\}(CaBiNb_2O_7)$ $\{Bi_2O_2\}(FeBi_3Ti_4O_{13})$
$\{Bi_2O_2\}(CrBi_7Ti_6O_{25})$

MIXED SILLEN-AURIVILLIUS PHASES:

$\{PbBi_3O_4\}ClF(NbO_3)$	$\{PbBi_3O_4\}Cl(SrTa_2O_7)$	$\{Bi_4O_4\}Cl(Bi_4Fe_3Ti_2O_{16})$
$\{PbBi_3O_4\}Cl_2(PbW_2O_7)$	$\{PbBi_3O_4\}Cl(Pb_2BiNb_4O_{16})$	$\{Bi_4O_4\}Cl(Bi_5Fe_4Ti_2O_{19})$
$\{SrBi_3O_4\}ClF(NbO_3)$	$\{PbBi_3O_4\}Br(Bi_2Ti_3O_{10})$	$\{Bi_4O_4\}Cl(Bi_4Fe_5Ti_2O_{22})$
$\{PbBi_3O_4\}BrF(NbO_3)$	$\{PbBi_3O_4\}Cl(Bi_2AlTi_2O_{10})$	$\{Bi_4O_4\}Cl(Bi_7Fe_6Ti_2O_{25})$
$\{PbBi_3O_4\}Cl_2(ReO_4)$	$\{Bi_4O_4\}Cl(Bi_2FeTi_2O_{10})$	$\{Bi_4O_4\}Cl(Bi_8Fe_7Ti_2O_{28})$
$\{PbBi_3O_4\}Cl(Bi_3Zr_2O_9)$	$\{Bi_4O_4\}Cl(Bi_3Fe_2Ti_2O_{13})$	$\{Bi_4O_4\}Cl(Bi_9Fe_8Ti_2O_{31})$
$\{PbBi_3O_4\}Cl(PbTa_2O_7)$	$\{PbBi_3O_4\}Cl(PbBi_2Ti_4O_{13})$	$\{Bi_4O_4\}Cl(Bi_{10}Fe_9Ti_2O_{34})$
	$\{PbBi_3O_4\}Cl(SrBi_2Ti_4O_{13})$	

STRUCTURES WITH OTHER INTERLAYERS:

$\{CaBi_2FO_2\}CO_3$
$\{Bi_4O_4\}[AsO_4](UO_2)(H_2O)_2$

NEW CLASSES OF SUPERCONDUCTORS:

- magnetically ordered superconductors
- A15 superconductors
- buckyball superconductors
- heavy electron superconductors
- organic superconductors
- high T_C oxide superconductors

ORGANICS:

Calcium Thioglycolate
5-Methyl Tetrahydrofolate

POLYMERS:

Poly(Propylene Oxide)	$(C_3H_6O)n$	Polyvinyl Fluoride	$(C_2H_3F)n$
Poly(4-Methylpentene-1)	$(C_6H_{12})n$	Polyvinyl Acetate	$(C_4H_6O_2)n$
		Nylons	
		Polyurethanes	
		Silicones	
Polyvinylidene Chloride	$(C_2H_2Cl_2)n$		
Poly(butadiene) ñ all isomers		Xanthum Gum	
1,2-poly(butadiene)		Poly (cyano acrylate)	
Cis-1,4 ñ poly(butadiene)		Poly (p-phenylene oxide)	
Trans -1,4-poly(butadiene)		Poly (isopropyl acrylamide)	
Poly(methyl methacrylate), including isotactic syndiotactic		Poly (cyclopropyl acrylamide)	

ALLOYS:

$Ag_2Mg_{12}Zn_{25}$	B_7Mg	Cu_9Se_5
Be_7Rh	$B_{10}Ni_{29}Sc_4$	$C_3La_2Mn_{22}$
B_3NdRh5	$Ce_5Ni_2Si_3$	$C_3Mn_{17}Si_4$
$B_6Pr_2Re_3$	$Co_2N_5Ta_4$	$C_5Mn_{34}Tb_4$

The following may be submitted if different than what is already in our database:

Formula	PDF#		
(Ag3In)La4	01-072-5106	QM=I	I4/mmm
Sc4Ni29B10	03-065-8315	QM=I	I41/amd
Pr2Re3B6	04-010-0968	QM=I	C2/c

Common Name	**Empirical Formula**
Abramovite	Bi In Pb2 S7 Sn
Arcubisite	Ag6 Bi Cu S4
Carducciite	Ag2 (As, Sb)16 Pb12 S40 Sb2
Coiraite	As3 Fe (Pb, Sn)12.5 S28 Sn5
Csiklovaite	Bi, S, Se, Te
Dienerite	As Ni3
Dzhezkazganite	Pb, Re, S
Ferchromide	Cr1.5 Fe0.2
Flowers of sulfur [Not an IMA name.]	S
Hexaferrite	**Fe**, Ir, Os, Ru
Horsfordite	Cu5 Sb
Icosahedrite [Icosahedral, Fm-3-5, a6D = 12.64 (six-dimensional notation)]	Al13 Cu24 Fe13
Jeromite	As (S, Se)2
Joseite C	Bim (S, Se, Te)p [m+p=7]
Kitaibelite [Not an IMA name.]	Ag10 Bi30 Pb S51
Lukkulaisvaaraite	Ag2 Pd14 Te9
Marumoite	As40 Pb32 S92
Mayckainite	Cu10 (Cu, Fe, Zn)3 Ge3 Mo S16
Metastibnite	S3 Sb2
Milk of sulfur [Not an IMA name]	S
Mischmetal [a mixture of lanthanides and cerium; a typical composition includes approximately 50% cerium and 25% lanthanum, with small amounts of neodymium and praseodymium.] Not an IMA name.	
Muntz metal [a casting alloy of approximate composition Cu3Zn2]. [Not an IMA name.]	
Platynite	(Bi, Pb) (S, Se)
Selenopolybasite	[(Ag, Cu)6 (As, Sb)2 (S, Se)7] [Ag9 Cu (S, Se)2 Se2]
Sphaerobismoite	Bi2 O3
Sztrokayite [Not an IMA name.]	Bi3 S2 Te
Viqenite	Fe4 O S8

NEW ITEM:
Non-ambient diffraction patterns of materials that show technologically interesting physical properties at such conditions.

CLAYS:
Clays that are not in the PDF-4+ database with raw data.

BATTERY MATERIALS:
Lithium Manganese Dioxide $LiMnO_2$ (rhombohedral)

MICRO & MESO POROUS MATERIALS:
Micro & Meso porous materials that are not in PDF-4+ database

METAL ORGANIC FRAMEWORK (MOF) MATERIALS:
Metal Organic Framework (MOF) materials that are not in PDF-4+ database

HYDROGEN STORAGE MATERIAL
Hydrogen Storage Materials that are not in PDF-4+ Database

MODULATED STRUCTURES
Experimental patterns of well characterized modulated structures that are not in PDF-4+

NEUTRON DIFFRACTION PATTERNS
Neutron diffraction patterns of technologically important materials

NARCOTICS
Narcotics that are not in the Powder Diffraction File with good quality raw powder patterns

3-METHYLFENTANYL
3-METHYLTHIOFENTANYL
ACETORPHINE
ACETYL-ALPHA-METHYLFENTANYL
ACETYLDIHYDROCODEINE
ACETYLMETHADOL
AH-7921
ALFENTANIL
ALLYLPRODINE
ALPHACETYLMETHADOL
ALPHAMEPRODINE
ALPHAMETHADOL
ALPHA-METHYLFENTANYL
ALPHA-METHYLTHIOFENTANYL
ALPHAPRODINE
ANILERIDINE

BENZETHIDINE
BETACETYLMETHADOL
BETAMEPRODINE
BETAMETHADOL
BETAPRODINE
BEZITRAMIDE
CANNABIS
CANNABIS RESIN and EXTRACTS and TINCTURES OF CANNABIS
CLONITAZENE
Coca leaf
CODOXIME
CONCENTRATE OF POPPY STRAW
DESOMORPHINE
DEXTROPROPOXYPHENE
DIAMPROMIDE
DIETHYLTHIAMBUTENE
DIFENOXIN
DIHYDROETORPHINE
DIHYDROMORPHINE
DIMENOXADOL
DIMEPHEPTANOL
DIMETHYLTHIAMBUTENE
DIOXAPHETYL BUTYRATE
DIPHENOXYLATE
DIPIPANONE
DROTEBANOL
ECGONINE
ETHYLMETHYLTHIAMBUTENE
ETHYLMORPHINE
ETONITAZENE
ETORPHINE
ETOXERIDINE
FENTANYL
FURETHIDINE
HYDROMORPHINOL
HYDROMORPHONE
LEVOPHENACYLMORPHAN
METAZOCINE
METHADONE INTERMEDIATE
METHYLDESORPHINE

METHYLDIHYDROMORPHINE
METOPON
MORAMIDE INTERMEDIATE
MORPHERIDINE
MORPHINE METHOBROMIDE
MPPP
NICOCODINE
NICODICODINE
NICOMORPHINE
NORACYMETHADOL
NORCODEINE
NORLEVORPHANOL
NORMETHADONE
NORMORPHINE
NORPIPANONE
OPIUM
ORIPAVINE
OXYMORPHONE
PARA-FLUOROFENTANYL
PEPAP
PETHIDINE INTERMEDIATE A
PETHIDINE INTERMEDIATE B
PETHIDINE INTERMEDIATE C
PHENAMPROMIDE
PHENAZOCINE
PHENOMORPHAN
PHOLCODINE
PIMINODINE
PIRITRAMIDE
PROHEPTAZINE
PROPERIDINE
PROPIRAM
REMIFENTANIL
THEBACON
THIOFENTANYL
TILIDINE
TRIMEPERIDINE