SciFinder Scholar Inorganics Searching

Inorganic Substance	Model Compound	Best Approach (SciFinder)	Comments
Section II. (Elements, etc.)			
A) Base Element	Germanium	Name search=Germanium	No ions or isotopes retrieved
A) All Forms of an Element	Germanium	MF Search=Ge	Includes all ions and isotopes
A) All Isotopes of an Element	Germanium	MF Search=Ge. Refine by isotope-containing	Individual isotopes cannot be searched.
A) Specific Ions	Germanium^{4+}	Exact structure search: Ge atom with +4 charge with limit to precision analysis & single component. Choose 'Conventional Exact' option.	Results can be refined to isotope-containing.
B) Allotropes	Red Phosphorus	Keyword searches (exactly as entered): 1) 7723-14-0 red 2) red phosphorus. Combine sets with Boolean 'or'	CAS does not assign separate RN's to allotropes.
C) Simple Ionic Species	Sulfate Ion^{2-}	Exact structure search: sulfate with oxygen charges and limit to precision analysis & single component.	Includes all isotopes and hydrates.
D) Elementary Particles	Top quark	Name search=Top quark	Various synonyms can be searched.
Section III. (Salts)			
A) Simple Ionic Salts (1-element anions, hydroxides, cyanides)	Ferric Hydroxide	1) Name search=Ferric Hydroxide or Fe(OH)3 2) MF Search=FeH3O3	Strict alphabetical, capitalization & spacing avoids ambiguity
B) Oxygen-containing Acid Salts	Sodium Bisulfate	1) Name search=Sodium bisulfate 2) MF Search=H2O4S.Na	CAS calls these "dot-disconnect formulas", acidic hydrogen retained! Hydrates are NOT retrieved.
C) Specific Salt Hydrate	Copper(II) Sulfate Pentahydrate	MF Search=Cu.H2O4S.5H2O	One must include acidic hydrogens in the dot-disconnect MF.
C) All Hydrates of a Salt	Sodium Sulfate	Draw 3 unconnected structures: Na+, SO4-2, & H2O. Do exact search limited to precision analysis, single component, and 'Organics & all others...' Choose 'Conventional Exact' option.	Will include all ratios of hydrates and metal ions including bisulfates.
D) Multivalent Cations: Indeterminate Mixtures	Iron Hydroxide (Fe_xOH_x)	MF Search=Fe.HO	Includes other complex and variable ratios of the two species.

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Section IV. (Binary Oxides & Sulfides)	Zinc Disulfide	1) Name search=Zinc disulfide 2) MF Search=S2Zn	Retrieves all isotopes, minerals, and charged species.
Section V. (Minerals)			
Specific Mineral	Rutile	Name search=Rutile	
Minerals with specific MF (Single component)	TiO_2 minerals	MF Search=O2Ti	Results cannot be limited to minerals only.
Minerals (Multicomponent)	Aluminum hydroxide silicates (Si_2O_5)	MF Search=Al.HO.O5Si2	Results cannot be limited to minerals only.
Section VI. (Metallic Compounds)			
A.2) Alloys with known names or designations & unknown compositions	UNS R60804; Zircaloy 4	Name search= UNS R60804	
A.3) Alloys [All ratios - fixed number of elements]	Fe-Mn-Ni tertiary alloys	MF=Fe.Mn.Ni limited to Alloys class	Retrieval sets often large. Use STN to access composition tables & number of components fields.
A.4) Alloys [All ratios - specific elements but others may be present]	Alloys containing at least Co, Cr, W, Mn, & Al.	Structure Search: Draw unconnected atoms/components (Co, Cr, W, Mn, Al). Do Exact Search limited to alloys.	Analyze by Element useful in limiting to addn. elements. Use STN to access composition tables & number of components fields.
A.5) Cermets	Tungsten carbide-Co alloys	MF Search=CW.Co	Note nonmetallic containing species often treated as a single entity (CW).
B) Intermetallics	Copper-Tin (Cu_3Sn)	1) MF=Cu3.Sn (specific ratio) 2) MF-Cu.Sn (all ratios)	1st query assumes presence of alternate MF
C) Homogeneous Metal Clusters	Au_{55}	1) MF=Au55 (specific cluster) 2) Name search=Gold cluster (all clusters)	
Section VII. (Other Tabular Inorganics (TIS))			
A) TIS [Specific Ratio]	Silver Molybdenum Oxide ($Ag_2Mo_2O_7$)	1) MF search= Ag2 Mo2 O7 & 2) Topic keyword search: Ag2Mo2O7	2nd query retrieves articles where RN was not assigned.

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B) TIS [All ratios - fixed number of species]	Silver Molybdenum Oxides	MF search= Ag.Mo.O	
C) TIS [All ratios - specific species but others may be present]	Ag-Mo-O containing compounds	Structure Search: Draw 3 unconnected atoms (Ag, Mo, & O). Do Exact Search limited to 'Organics & all others…"	Analyze by Element useful in limiting to addn. elements. Use STN to access composition tables & number of components fields.
D) Multi-atom components	Silver Vanadium Oxide Phosphates	Search in same way as previous 3 examples. For all ratios of fixed no. of species: MF=Ag.O4P.O.V	Key point is that nonmetallic species often are treated as a distinct multi-atom entity; e.g. the phosphate group.
Section VIII. (Indeterminate & Variable Compositions)			
A) Solid Solutions, Doped Materials, Indeterminate Derivatives	Nd derivatives of $Al_3Y(BO_3)_4$	1) MF Search='Al.BO3.Nd.Y' 2) MF search=Al.BO3.Y 3) Structure Search: Draw unconnected Al, Y, & BO3. Exact Search w/precision anal. & single component. 4) Using RN's from 2) & 3), Explore References query=[RN]D in neodymium.	See full explanation in the article.
B.1) Registered Concept	Mica-group minerals [12001-26-2]	1) Keyword search: mica (use various Analyze/Refine options to limit) 2) Substance Identifier: 12001-26-2	Keywords/index terms must be searched in addition for use of RN, assuming RN is has references.
B.2) Generic Registration	Carbonic, Acid, beryllium salt, basic [1319-43-3]	1) RN has 0 references. Identify specific beryllium carbonates (salt or TIS) 2) Keyword Search=Basic beryllium carbonate	Keywords/index terms must be searched in addition for use of RN, assuming RN is has references.

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