

Supplementary Material

Taking a deeper look into the roles of amines in atomic absorption spectrometry

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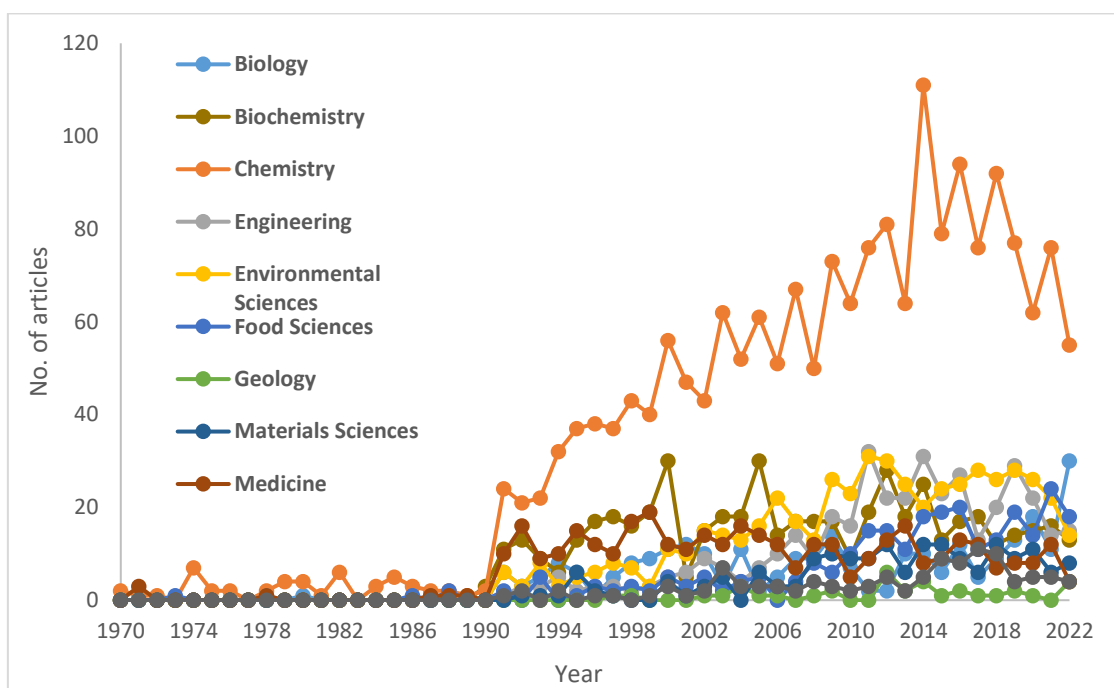
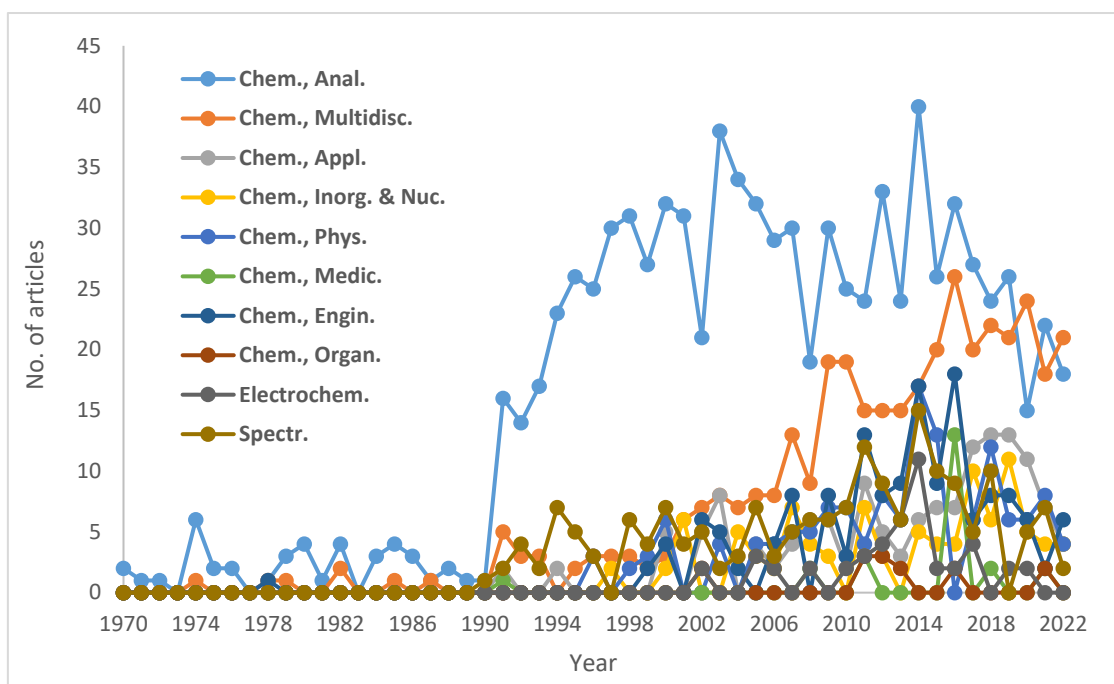


Fig. SI-1. Amine-related articles/AAS published from 1970 separated by chemistry areas (above) and related matters (below).

Table SI-1. Interferent effects and employment as interference suppressors of amines in AAS.

Amine	Metal	Technique
<i>Interferent</i>		
Methylamine, Dimethylamine, Trimethylamine, Ethylamine, Diethylamine, Triethylamine, Aniline, Pyridine	Fe, Co, Ni, Cr, Cu	FAAS
Methylamine, Ethylamine, Ammonia	Ag	
Triethanolamine	Al	
Hexamethylenetetramine, Urea		
<i>N</i> -Benzoyl- <i>N</i> -phenylhydroxylamine	Sn	ETAAS
Hydroxylamine	Hg	Cold-vapour
<i>Interference Suppressor</i>		
Hydroxylamine	Cr (Fe interferent)	FAAS
Ethanolamine	Pt (Organic and inorganic compounds)	
1,10-phenanthroline	As	FAAS
n-butylamine	Rh	FAAS

Table SI-2. Some representative extraction systems.

Complex	pH, Molarity	Organic solvent
Ethylenediamine / Cu / detergents	6-9	Chloroform
Ethylenediamine / Cu / detergents	5-9	
Ethylenediamine / Cu / surfactants	7-11	
BPHA / Sb / I	0.5-3 M HCl	
CXA / V / Cl	4-9 M HCl	CCl ₄
TOA / Sb / Br	1M H ₂ SO ₄	MIBK
TOA / Metal / I	0.1-1.0 M HCl	
TOA / Cd / I	0.1-2 M HCl	
TOA / Be / SCN	2.60-3.15	
TOA / W / SCN	10 M HCl	
Aliquat / Mo / SCN	1 M HCl	MIBK
TOA / Au / Br	0.1 M HClO ₄	<i>n</i> -Butyl acetate
<i>O</i> -diamines / Se / Cl	1-2	Toluene
Amberlite / Cd / I	0.01 M HCl	Xylene

Table SI-3. Other amine/metal systems potentially used in the AAS fields.

Amine (LIE)	Metal	Technique
Trioctylamine (Alamine 336) (TOA) (Tricaprylyltertiary amine)	Al, Fe, Si	FAAS
<i>N</i> -Benzoyl- <i>N</i> -phenyl hydroxyl amine	Sn	
Desferrioxamine	Fe	
Zephiramine	Cd, Ni, Zn	
Triisooctylamine	Nb, Ta	
Methyldioctylamine	Nb, Ta	
Dipentylamine	Be	
<i>N</i> -benzoyl- <i>N</i> -phenylhydroxylamine (BPHA)	Mo	
<i>N</i> -benzoyl- <i>O</i> -tolylhydroxylamine (BTHA)	V	
Zephiramine* (Benzyldimethyltetradecylammonium)	Au, Pd, Pt	