

Primary Explosives

Bearbeitet von
Robert Matyáš, Jirí Pachman

1. Auflage 2013. Buch. xix, 338 S. Hardcover

ISBN 978 3 642 28435 9

Format (B x L): 15,5 x 23,5 cm

Gewicht: 701 g

[Weitere Fachgebiete > Physik, Astronomie > Angewandte Physik > Chemische Physik](#)

schnell und portofrei erhältlich bei


DIE FACHBUCHHANDLUNG

Die Online-Fachbuchhandlung beack-shop.de ist spezialisiert auf Fachbücher, insbesondere Recht, Steuern und Wirtschaft. Im Sortiment finden Sie alle Medien (Bücher, Zeitschriften, CDs, eBooks, etc.) aller Verlage. Ergänzt wird das Programm durch Services wie Neuerscheinungsdienst oder Zusammenstellungen von Büchern zu Sonderpreisen. Der Shop führt mehr als 8 Millionen Produkte.

Contents

1	Introduction to Initiating Substances	1
1.1	Primary Explosives	4
1.2	Priming Compositions	5
1.3	Environmental Hazards: Emergence of Green Initiating Substances	6
	References	10
2	Explosive Properties of Primary Explosives	11
2.1	Influence of Density on Detonation Parameters	11
2.2	Initiating Efficiency	13
2.2.1	Influence of Density and Compacting Pressure	13
2.2.2	Influence of Specific Surface	19
2.2.3	Influence of the Charge Diameter	20
2.2.4	Influence of Confinement	20
2.2.5	Influence of Secondary Charge Type	22
2.2.6	Mixtures	23
2.3	Sensitivity	23
2.3.1	Impact Sensitivity	25
2.3.2	Friction Sensitivity	29
2.3.3	Sensitivity to Electrostatic Discharge	31
2.3.4	Sensitivity to Flame	32
	References	33
3	Fulminates	37
3.1	Introduction	37
3.1.1	Fulminic Acid	37
3.1.2	Mercury Fulminate	39
3.1.3	Silver Fulminate	58
3.1.4	Other Fulminates	62
	References	66

4 Azides	71
4.1 Azoimide	71
4.2 Lead Azide	72
4.2.1 Physical and Chemical Properties	72
4.2.2 Chemical Reactivity	74
4.2.3 Sensitivity	77
4.2.4 Explosive Properties	78
4.2.5 Preparation	80
4.2.6 Spontaneous Explosions During Crystal Growth	85
4.2.7 Uses	86
4.3 Other Substances Derived from Lead Azide	87
4.3.1 Basic Lead Azide	87
4.3.2 Lead (IV) Azide	88
4.4 Silver Azide	89
4.4.1 Physical and Chemical Properties	89
4.4.2 Sensitivity	91
4.4.3 Explosive Properties	92
4.4.4 Preparation	93
4.4.5 Uses	96
4.5 Copper Azides	96
4.5.1 Physical and Chemical Properties	97
4.5.2 Explosive Properties	98
4.5.3 Preparation	100
4.5.4 Undesired Formation of Copper Azides	102
4.5.5 Uses	104
4.6 Other Metallic Azides	105
4.6.1 Physical and Chemical Properties	105
4.6.2 Explosive Properties	106
4.6.3 Preparation	108
4.6.4 Uses	110
4.7 Organic Azides	110
4.8 Cyanuric Triazide	111
4.8.1 Physical and Chemical Properties	112
4.8.2 Explosive Properties	112
4.8.3 Preparation	115
4.8.4 Uses	115
4.9 4,4',6,6'-Tetra(azido)hydrazo-1,3,5-triazine and 4,4',6,6'-Tetra (azido)azo-1,3,5-triazine	116
4.9.1 Physical and Chemical Properties	116
4.9.2 Explosive Properties	116
4.9.3 Preparation	117
4.9.4 Uses	118
4.10 1,3,5-Triazido-2,4,6-trinitrobenzene	118
4.10.1 Physical and Chemical Properties	118
4.10.2 Explosive Properties	119

4.10.3	Preparation	120
4.10.4	Uses	121
4.11	2,3,5,6-Tetraazido-1,4-benzoquinone	121
4.11.1	Physical Properties	121
4.11.2	Explosive Properties	122
4.11.3	Preparation	123
4.11.4	Uses	123
	References	123
5	Salts of Polynitrophenols	131
5.1	Salts of Picric Acid	131
5.1.1	Normal Lead Picrate	132
5.1.2	Basic Lead Picrate	133
5.2	Salts of Dinitroresorcinol	133
5.2.1	Lead salts of 2,4-Dinitroresorcinol	133
5.2.2	Lead Salts of 4,6-Dinitroresorcinol	135
5.3	Salts of Trinitroresorcine	138
5.3.1	Lead Styphnate	138
5.3.2	Basic Lead Styphnate	145
5.3.3	Double Salts of Lead Styphnate	148
5.3.4	Barium Styphnate	149
5.3.5	Other Salts of Styphnic Acid	152
	References	152
6	Diazodinitrophenol	157
6.1	Introduction	157
6.2	Structure	157
6.3	Physical and Chemical Properties	159
6.4	Explosive Properties	160
6.5	Preparation	162
6.6	Use	164
	References	165
7	Salts of Benzofuroxan	167
7.1	Introduction	167
7.2	Salts of 4,6-Dinitrobenzofuroxan	168
7.2.1	Physical and Chemical Properties	169
7.2.2	Explosive Properties	169
7.2.3	Preparation of 4,6-Dinitrobenzofuroxan	172
7.2.4	Preparation of 4,6-Dinitrobenzofuroxan Salts	173
7.2.5	Uses	174
7.3	Potassium Salt of 7-Hydroxylamino-4,6-dinitro-4,7-dihydrobenzofuroxan	175
7.4	Potassium Salt of 7-Hydroxy-4,6-dinitrobenzofuroxan	176
7.4.1	Physical and Chemical Properties	176
7.4.2	Explosive Properties	176

7.4.3	Preparation	177
7.4.4	Uses	179
7.5	Salts of Bis(furoxano)-2-nitrophenol	179
7.5.1	Physical and Chemical Properties	180
7.5.2	Explosive Properties	180
7.5.3	Preparation	181
7.5.4	Uses	182
	References	183
8	Tetrazoles	187
8.1	Tetrazene	189
8.1.1	Physical and Chemical Properties	190
8.1.2	Explosive Properties	191
8.1.3	Preparation	192
8.1.4	Uses	193
8.2	5-Aminotetrazole Salts	194
8.2.1	Physical and Chemical Properties	194
8.2.2	Explosive Properties	195
8.2.3	Preparation	195
8.2.4	Uses	197
8.3	5-Nitrotetrazole Salts	197
8.3.1	Physical and Chemical Properties	197
8.3.2	Explosive Properties	199
8.3.3	Preparation	203
8.3.4	Uses	206
8.4	5-Chlorotetrazole Salts	207
8.4.1	Physical and Chemical Properties	207
8.4.2	Explosive Properties	207
8.4.3	Preparation	208
8.4.4	Uses	209
8.5	5-Azidotetrazole Salts	209
8.5.1	Physical and Chemical Properties	209
8.5.2	Explosive Properties	209
8.5.3	Preparation	210
8.5.4	Uses	211
8.6	5,5'-Azotetrazole Salts	212
8.6.1	Physical and Chemical Properties	213
8.6.2	Explosive Properties	214
8.6.3	Preparation	216
8.6.4	Uses	217
8.7	Tetrazoles with Organic Substituent	217
8.7.1	5-Picrylaminetetrazole	218
8.7.2	1-(1 <i>H</i> -Tetrazol-5-yl)guanidinium Nitrate	219

8.8	Organic Derivatives of 5-Nitrotetrazole	221
8.9	Organic Derivatives of 5-Azidotetrazole	222
8.9.1	Explosive Properties	222
8.9.2	Preparation	222
	References	223
9	Tetrazole Ring-Containing Complexes	227
9.1	Cobalt Perchlorate Complexes	228
9.1.1	Pentaamine(5-cyano-2 <i>H</i> -tetrazolato- <i>N</i> ²)cobalt(III) perchlorate (CP)	228
9.1.2	CP Analogs	235
9.1.3	1,5-Cyclopentamethylenetetrazole Complexes	238
9.1.4	Tetraammine- <i>cis</i> -bis(5-Nitro-2 <i>H</i> -tetrazolato- <i>N</i> ²) cobalt(III) perchlorate (BNCP)	241
9.1.5	BNCP Analogs	244
9.1.6	Perchlorate Complexes of 1,5-Diaminotetrazole	245
9.1.7	Other Perchlorate-Based Complexes	247
9.2	Perchlorate-Free Complexes	247
9.2.1	Iron- and Copper-Based 5-Nitrotetrazolato- <i>N</i> ² Complexes	247
9.2.2	Perchlorate-Free CP Analogs	250
9.3	Other Transition Metal-Based 5-Nitrotetrazolato- <i>N</i> ² Complexes	251
	References	252
10	Organic Peroxides	255
10.1	Peroxides of Acetone	255
10.1.1	Diacetone Diperoxide	256
10.1.2	Triacetone Triperoxide	262
10.1.3	Tetraacetone Tetraperoxide	274
10.2	Hexamethylene Triperoxide Diamine	275
10.2.1	Physical and Chemical Properties	275
10.2.2	Explosive Properties	278
10.2.3	Preparation	279
10.2.4	Uses	280
10.3	Tetramethylene Diperoxide Dicarbamide	280
10.3.1	Physical and Chemical Properties	281
10.3.2	Preparation	281
10.3.3	Use	281
	References	282

11	Nitrogen Halides	289
11.1	Nitrogen Trichloride	289
11.1.1	Physical and Chemical Properties	289
11.1.2	Explosive Properties	290
11.1.3	Preparation	291
11.1.4	Use	293
11.2	Nitrogen Tribromide	293
11.2.1	Physical and Chemical Properties	294
11.2.2	Preparation	294
11.3	Nitrogen Triiodide	295
11.3.1	Structure	296
11.3.2	Physical and Chemical Properties	297
11.3.3	Explosive Properties	298
11.3.4	Preparation	299
11.3.5	Use	300
	References	300
12	Acetylides	303
12.1	Silver Acetylides	303
12.1.1	Silver Acetylide	304
12.1.2	Silver Acetylide–Silver Nitrate	308
12.1.3	Silver Acetylide–Silver Hexanitrate	312
12.1.4	Other Salts of Silver Acetylide–Silver Nitrate	312
12.2	Cuprous Acetylide	313
12.2.1	Physical and Chemical Properties	313
12.2.2	Explosive Properties	314
12.2.3	Preparation	315
12.2.4	Uses	316
12.3	Cupric Acetylide	316
12.3.1	Physical and Chemical Properties	316
12.3.2	Explosive Properties	317
12.3.3	Preparation	317
12.3.4	Uses	318
12.4	Mercuric Acetylide	318
12.4.1	Physical and Chemical Properties	318
12.4.2	Explosive Properties	319
12.4.3	Preparation	319
12.4.4	Uses	320
12.5	Mercurous Acetylide	320

12.6	Aurous Acetylide	321
12.6.1	Physical and Chemical Properties	321
12.6.2	Explosive Properties	321
12.6.3	Preparation	321
	References	322
13	Other Substances	325
13.1	Salts of Nitramines	325
13.2	Organophosphates	328
13.3	Hydrazine Complexes	331
	References	333
	Index	335