

CONTENTS

1 Introduction	1
2 Flammable limits	3
Flammable limits of gases	3
Flammable limits of dusts and mists	4
Estimation of flammable limits	4
Flammable limits of mixtures	5
References	6
3 Flash points	7
Flash points of liquids	7
Calculation of flash points	7
References	10
4 Ignition energy	11
Minimum ignition energy	11
Ignition energy of gases	11
Ignition energy of dusts	12
Estimation of ignition energy	12
References	18
5 Autoignition temperature	20
Autoignition temperature of gases	20
Autoignition temperature of dusts	21
Estimation of autoignition temperature	22
Other factors	24
References	24

6 Sources of energy for ignition	26
Mechanical sources	26
Friction	26
Missiles	31
Metal fracture	33
Electrical sources	34
Electrical current	34
Electrostatics	36
Lighting	40
Stray currents	43
Radio frequency	43
Thermal sources	44
Hot surfaces	45
Self-heating	46
Flames	48
Compression	49
Engines	50
Diffusion	52
Chemical sources	53
Peroxides	53
Polymerization	56
Spontaneous combustion	58
Reaction with other substances	61
Thermite reaction	62
Unstable substances	65
Decomposition	66
Appendices	
1 Fire and related properties of chemicals	69
2 Substances liable to self-heating	130
3 Organic peroxides	133
4 Spontaneously flammable substances	138
5 Unstable substances	147
6 Flammability characteristics of dusts	150
7 Sources of ignition checklist	152
Index	153