

CONTENTS

	Page
1. INTRODUCTION	1
1.1 Using the Handbook	1
1.2 The Classification of Adhesives	1
1.3 Background to the use of adhesive bonding	3
1.4 Factors determining whether to bond with adhesives	4
1.5 Advantages and disadvantages of adhesive bonding	5
1.6 The bonding process	6
2. JOINT DESIGN	7
2.1 Types of Stresses	7
2.2 Types of Joints	8
2.3 Selection of joint detail	8
2.4 Joint design criteria	18
3. ADHESIVE SELECTION	21
3.1 Introduction	21
3.2 Requirements of bonded assembly	22
3.3 Materials to be bonded	23
3.4 Compatibility of adherends and adhesives	24
3.5 Bond stresses	24
3.6 Processing requirements	24
3.7 Service conditions	25
3.8 Service life	26
3.9 Assembly storage conditions	26
3.10 Cost	26
3.11 Special considerations	26
3.12 Checklist of Factors for adhesive selection	27
4. ADHESIVES MATERIALS AND PROPERTIES	28
4.1 The components of an adhesive	28
4.2 Adhesives types	29
4.3 Properties of basic adhesive types	31
5. ADHESIVE PRODUCTS DIRECTORY	78
5.1 Introduction	78
5.2 Adhesive products tables	78
6. SURFACE PREPARATION	235
6.1 Introduction	235
6.2 Safety precautions	235
6.3 Surface treatment	235
6.4 Metals	236
6.5 Plastics	244
6.6 Rubber (natural and synthetic)	250
6.7 Fibre products	252
6.8 Inorganic materials	253
6.9 Wood and allied materials	255
6.10 Painted surfaces	256
7. THE BONDING PROCESS	258
7.1 Storage	258

7.2	Preparation of the adhesive	258
7.3	Methods of Application	258
7.4	Methods of adhesive bonding	259
7.5	Inadequate bonding	260
7.6	Methods of bond curing	261
7.7	Bonding pressure	263
7.8	Equipment for processing adhesives	264
8.	PHYSICAL TESTING OF ADHESIVES	268
8.1	Introduction	268
8.2	Strength properties	268
8.3	Assessment of durability and strength parameters	274
9.	ADHESIVES TABLES	284
9.1	Introduction	284
9.2	Physical properties of adhesive materials	284
10.	ADHESIVES AND TRADE SOURCES	318
10.1	Trade names list	318
10.2	Basic adhesives types and trade sources	330
10.3	Adhesives manufacturers	332
10.4	Sources of further information on adhesives	340
11.	GLOSSARY OF TERMS RELATING TO ADHESIVES TECHNOLOGY	343
12.	BIBLIOGRAPHY	354