

# Contents

Page

Foreword	v
9 Pumps – general guidelines for materials, sound testing, and decontamination	1
9.0 Introduction	1
9.0.1 Purpose	1
9.0.2 Scope	1
9.0.3 Units, symbols, and subscripts	5
9.1 Materials	8
9.1.1 Introduction	8
9.1.2 Data on liquids	9
9.1.3 Factors affecting material selection	9
9.1.4 Positive displacement pumps – materials – general designations	16
9.1.5 Rotodynamic pumps – materials – general designation	18
9.1.6 Materials of construction	20
9.2 Measurement of airborne sound	33
9.2.1 Purpose	33
9.2.2 Introduction	33
9.2.3 Instrumentation	33
9.2.4 Operation of pumping equipment	34
9.2.5 Test environment	34
9.2.6 Microphone locations	34
9.2.7 Measurement technique	44
9.2.8 Measurements to be taken	44
9.2.9 Calculation and interpretation of readings	45
9.2.10 Presentation of data	46
9.3 Decontamination of returned products procedure	46
9.4 Intentionally left blank	48
9.5 Intentionally left blank	48
Appendix A Bibliography	49
Appendix B Airborne sound pressure level test report (informative)	51
Figures	
9.0.a – Rotodynamic pump types	1
9.0.b — Rotodynamic pump types – overhung impeller	1
9.0.c — Rotodynamic pump types – between bearing	2
9.0.d — Rotodynamic pump types – vertically suspended	2
9.0.e — Rotodynamic pump types – regenerative turbine	3
9.0.f — Rotodynamic pump types – circulator pump	3
9.0.g — Rotary pump types	3
9.0.h — Rotodynamic pump types – sealless	4
9.0.i — Reciprocating power pump types	4
9.0.j — Direct acting (steam) pump types	4

9.0.k — Rotodynamic slurry pump types . . . . .	5
9.1.3.5.1 — Galvanic series of metals and alloys beginning with the corroded end (anodic, or least noble) . . . .	12
9.1.6.19 — General ranking of cavitation erosion resistance of common cast metals. . . . .	31
9.1.6.19.3 — General hardness of common overlay materials . . . . .	32
9.2.6a — Horizontal end suction centrifugal pump . . . . .	35
9.2.6b — Horizontally split rotodynamic pump. . . . .	36
9.2.6c — Vertical in-line centrifugal pump . . . . .	37
9.2.6d — Double case BB5 pump . . . . .	38
9.2.6e — Horizontally split multistage rotodynamic pump . . . . .	39
9.2.6f — Horizontal reciprocating pump. . . . .	39
9.2.6g — Vertical reciprocating pump . . . . .	40
9.2.6i — Horizontal rotary screw pump . . . . .	41
9.2.6h — Horizontal rotary gear pump. . . . .	41
9.2.6j — Vertical rotary pump . . . . .	42
9.2.6k — VS1-VS7 pumps . . . . .	43
9.2.6l — VS8 pump . . . . .	43
Tables	
9.0.3 — Preferred measurement units and conversion factors . . . . .	5
9.1.3.7 — Relative ranking of adhesive wear resistance of wrought materials . . . . .	14
9.1.6.19 — Comparison of hard-facing application methods . . . . .	32
9.2.9.1 — Corrections for background noise . . . . .	45