DIN EN 13951:2012-08 (E)

Liquid pumps - Safety requirements - Agrifoodstuffs equipment; Design rules to ensure hygiene in use

Contents

Page

Foreword 4

Introduction 5

1 Scope 5

2 Normative references 6

3 Terms and definitions 6

4 List of hazards 9

5 Hygiene: safety requirements and/or measures 12
5.1 General 12
5.2 Materials 12
5.2.1 Common requirements 12
5.2.2 Food areas 12
5.2.3 Non-food areas 13
5.3 Design - Food areas 14
5.3.1 General design criteria 14
5.3.2 Avoidance of product retention 14
5.3.3 Cleanability 14
5.3.4 Sterilization 15
5.3.5 Surface texture 16
5.3.6 Permanent and dismantleable joints - General criteria 16
5.3.7 Process flow obstructions and intrusions 16
5.3.8 Product contact bearings 16
5.3.9 Shaft seals 16
5.3.10 Fasteners 17
5.3.11 Access and drainage ports 17
5.3.12 Sensors and sensor connections 17
5.4 Design - Non-food areas 17
5.4.1 General criteria 17
5.4.2 Bearings 18
5.4.3 Quick-release fasteners 18
5.5 Auxiliary liquids, barriers and lubricants 18
5.6 Guards and shrouds 18
5.7 Legs 18

6 Verification of hygiene measures 18
6.1 General 18
6.2 Inspection of documentation 19
6.3 Inspection of the assembled pump or pump unit 19
6.4 Materials 19
6.5 Level of cleanability 19
6.5.1 Cleanability levels 1 and 2 19
6.5.2 Cleanability level 3 19
6.5.3 Cleanability level 4 20
6.6 Surface roughness test 20

7 Information for use 20

7.1 General 20
7.2 Instruction for use - Instruction handbook 20

Annex A (informative) Materials in contact with foodstuffs (EU regulations) 21

A.1 Metallic materials in contact with foodstuffs 21
A.2 Elastomeric materials in contact with foodstuffs 21
A.3 Plastic materials in contact with foodstuffs 21

Annex B (informative) Surface roughness 22

Annex C (informative) Design practices 23

Annex D (informative) Hygienic risk associated with types of pump inlet and outlet connections 25

D.1 General 25
D.2 Hazards sources 25
D.3 Criteria to be taken into account 25

Annex E (informative) Hygienic risk linked to the choice of shaft sealing system and to the characteristics of the pumped product 27

Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC 28

Bibliography 29