

# Table of Contents

|                                                                        | Page |
|------------------------------------------------------------------------|------|
| 1 Area of Application.....                                             | 5    |
| 2 Terms .....                                                          | 7    |
| 3 Selection Criteria .....                                             | 11   |
| 4 Specification of the Target Gas.....                                 | 14   |
| 5 Alarm Set Points .....                                               | 16   |
| 6 Oxygen Monitoring within the Scope of Explosion Protection.....      | 17   |
| 7 Fixed Gas Detection Equipment .....                                  | 18   |
| 7.1 Design of Fixed Gas Detection Equipment.....                       | 18   |
| 7.1.1 Increased Availability.....                                      | 18   |
| 7.1.2 Gas Sampling.....                                                | 19   |
| 7.1.3 Installation and Design Documents .....                          | 21   |
| 7.2 Operation of Fixed Gas Detection Equipment.....                    | 21   |
| 7.2.1 Initial Commissioning of the Fixed Gas Detection Equipment ..... | 21   |
| 7.2.2 Operating Instructions.....                                      | 22   |
| 7.2.3 Alarms and Status Indications .....                              | 22   |
| 7.2.4 Measures in the Event of Non-Availability.....                   | 23   |
| 7.3 Maintenance of Fixed Gas Detection Equipment .....                 | 23   |
| 7.3.1 Checks of the Fixed Gas Detection Equipment .....                | 24   |
| 7.3.2 Calibration and Adjustment.....                                  | 28   |
| 7.3.3 Specification of Check Intervals.....                            | 30   |
| 7.3.4 Repair .....                                                     | 32   |
| 7.3.5 Gas Detection Equipment with Automatic Self-Test Routines .....  | 33   |
| 8 Portable Gas Detection Devices.....                                  | 34   |
| 8.1 Selection of Portable Gas Detection Equipment .....                | 34   |
| 8.1.1 Power supply .....                                               | 35   |
| 8.1.2 Gas Sampling.....                                                | 35   |
| 8.1.3 Design documents .....                                           | 36   |

**Table of Contents**

|                                                                                                                                                                                                   |                                                                                                                                             |    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|----|
| 8.2                                                                                                                                                                                               | Operation of Portable Gas Detection Equipment .....                                                                                         | 37 |
| 8.2.1                                                                                                                                                                                             | Initial Commissioning of the Portable Gas Detection Equipment .....                                                                         | 37 |
| 8.2.2                                                                                                                                                                                             | Operating Instructions.....                                                                                                                 | 38 |
| 8.2.3                                                                                                                                                                                             | Qualification for the Use of Portable Gas Detection Equipment .....                                                                         | 38 |
| 8.3                                                                                                                                                                                               | Maintenance of Portable Gas Detection Equipment .....                                                                                       | 39 |
| 8.3.1                                                                                                                                                                                             | Checks of the Portable Gas Detection Equipment .....                                                                                        | 39 |
| 8.3.2                                                                                                                                                                                             | Calibration and Adjustment.....                                                                                                             | 43 |
| 8.3.3                                                                                                                                                                                             | Specification of Check Intervals.....                                                                                                       | 45 |
| 8.3.4                                                                                                                                                                                             | Repair .....                                                                                                                                | 47 |
| <hr/>                                                                                                                                                                                             |                                                                                                                                             |    |
| 9                                                                                                                                                                                                 | Transportable Gas Detection Equipment .....                                                                                                 | 48 |
| <hr/>                                                                                                                                                                                             |                                                                                                                                             |    |
| 10                                                                                                                                                                                                | Integration into Tests in Accordance with the Betriebssicherheitsverordnung<br>(BetrSichV – Ordinance on Industrial Safety and Health)..... | 49 |
| <hr/>                                                                                                                                                                                             |                                                                                                                                             |    |
| 11                                                                                                                                                                                                | Requirements for Persons Being Charged with the Checks .....                                                                                | 52 |
| 11.1                                                                                                                                                                                              | Trained Person .....                                                                                                                        | 52 |
| 11.2                                                                                                                                                                                              | Qualified Personnel.....                                                                                                                    | 52 |
| 11.3                                                                                                                                                                                              | Competent Persons (Gas Detection Equipment).....                                                                                            | 53 |
| 11.4                                                                                                                                                                                              | Specialists .....                                                                                                                           | 54 |
| <hr/>                                                                                                                                                                                             |                                                                                                                                             |    |
| Annex 1: Extension of the Range of Application of Gas Detection Equipment<br>by Competent Bodies to Include Substances not Included in the<br>EC Type-Examination of the Measuring Function ..... |                                                                                                                                             | 55 |
| <hr/>                                                                                                                                                                                             |                                                                                                                                             |    |
| Annex 2: Bibliography .....                                                                                                                                                                       |                                                                                                                                             | 58 |
| <hr/>                                                                                                                                                                                             |                                                                                                                                             |    |
| Picture Credits.....                                                                                                                                                                              |                                                                                                                                             | 62 |