



# **Annex 1 of Test and Assessment Report-No.**

**557/Ex 8196.00/18**

These annex consists of the checklist:

**Checklist\_Annex II of Directive\_2014/34/EU**



**Checklist to annex II of directive 2014/34/EU****Title of the annex II of directive 2014/34/EU (ATEX) and compliance with the standards****Annex II of directive 14/34/EU**

	<b>Standard Gas- Ex</b>	<b>Standard Gas- Ex</b>	<b>Standard Dust- Ex</b>	<b>Overall estimation</b>
	<b>EN 60079-0: 2012</b>	<b>EN 60079-7: 2015</b>	<b>EN 60079- 31:2014</b>	
<b>1 COMMON REQUIREMENTS FOR EQUIPMENT AND PROTECTIVE SYSTEMS</b>				
<b>1.0. General requirements</b>				
1.0.1. Principles of integrated explosion safety	fulfilled	fulfilled	fulfilled	fulfilled
1.0.2. Equipment and protective systems must be designed and manufactured after due analysis of possible operating faults in order as far as possible to preclude dangerous situations.	fulfilled	fulfilled	partial fulfilled	fulfilled
1.0.3. Special checking and maintenance conditions	fulfilled	fulfilled	fulfilled	fulfilled
1.0.4. Surrounding area conditions	fulfilled	fulfilled	partial fulfilled	fulfilled
1.0.5. Marking	fulfilled	fulfilled	partial fulfilled	fulfilled
1.0.6. Instructions	fulfilled	fulfilled	fulfilled	fulfilled
<b>1.1. Selection of materials</b>				
1.1.1. The materials used for the construction of equipment and protective systems must not trigger off an explosion, taking into account foreseeable operational stresses.	fulfilled	fulfilled	fulfilled	fulfilled
1.1.2. Within the limits of the operating conditions laid down by the manufacturer, it must not be possible for a reaction to take place between the materials used and the constituents of the potentially explosive atmosphere which could impair explosion protection.	fulfilled	fulfilled	fulfilled	fulfilled
1.1.3. Materials must be so selected that predictable changes in their characteristics and their compatibility in combination with other materials will not lead to a reduction in the protection afforded; in particular, due account must be taken of the material's corrosion and wear resistance, ► C1 electrical conductivity, mechanical strength, ageing resistance ◀ and the effects of temperature variations.	fulfilled	fulfilled	fulfilled	fulfilled



1.2.	Design and Construction				
1.2.1.	Equipment and protective systems must be designed and constructed with due regard to technological knowledge of explosion protection so that they can be safely operated throughout their foreseeable lifetime.	fulfilled	fulfilled	fulfilled	fulfilled
1.2.2.	Components to be incorporated into or used as replacements in equipment and protective systems must be so designed and constructed that they function safely for their intended purpose of explosion protection when they are installed in accordance with the manufacturer's instructions.	fulfilled	fulfilled	fulfilled	fulfilled
1.2.3.	Enclosed structures and prevention of leaks	open	fulfilled	open	not applicable
1.2.4.	Dust deposits	fulfilled	open	partial fulfilled	fulfilled
1.2.5.	Additional means of protection	fulfilled	fulfilled	fulfilled	fulfilled
1.2.6.	Safe opening	fulfilled	fulfilled	open	not applicable
1.2.7.	Protection against other hazards	fulfilled	fulfilled	partial fulfilled	fulfilled
1.2.8.	Overloading of equipment	fulfilled	fulfilled	partial fulfilled	not applicable
1.2.9.	Flameproof enclosure systems	open	open	open	not applicable
1.3.	Potential ignition sources				
1.3.1.	Hazards arising from different ignition sources	fulfilled	fulfilled	partial fulfilled	fulfilled
1.3.2.	Hazards arising from static electricity	fulfilled	open	fulfilled	fulfilled
1.3.3.	Hazards arising from stray electric and leakage currents	fulfilled	fulfilled	partial fulfilled	fulfilled
1.3.4.	Hazards arising from overheating	fulfilled	fulfilled	partial fulfilled	fulfilled
1.3.5.	Hazards arising from pressure compensation operations	open	open	open	not applicable
1.4.	Hazards arising from external effects				
1.4.1.	Equipment and protective systems must be so designed and constructed as to be capable of performing their intended function in full safety, even in changing environmental conditions and in the presence of extraneous voltages, humidity, vibrations, contamination and other external effects, taking into account the limits of the operating conditions established by the manufacturer.	fulfilled	fulfilled	fulfilled	fulfilled
1.4.2.	Equipment parts used must be appropriate to the intended mechanical and thermal stresses and capable of withstanding attack by existing or foreseeable aggressive substances.	fulfilled	fulfilled	fulfilled	fulfilled



1.5.	Requirements in respect of safety-related devices				
1.5.1.	Safety devices must function ►C1 independently of any measurement and/or control devices ◀ required for operation. As far as possible, failure of a safety device must be detected sufficiently rapidly by appropriate technical means to ensure that there is only very little likelihood that dangerous situations will occur. ►C1 The fail-safe principle ◀ is to be applied in general. Safety-related switching must in general directly actuate the relevant control devices without intermediate software command.	open	open	open	not applicable
1.5.2.	In the event of a safety device failure, equipment and/or protective systems shall, wherever possible, be secured.	open	open	open	not applicable
1.5.3.	Emergency stopcontrols of safety devices must, as far as possible, be fitted with restart lockouts. A new start command may take effect on normal operation only after the restart lockouts have been intentionally reset.	open	open	open	not applicable
1.5.4.	Control and display units	open	open	open	not applicable
1.5.5.	Requirements in respect of devices with a measuring function for explosion protection.	open	open	open	not applicable
1.5.6.	Where necessary, it must be possible to check the reading accuracy and serviceability of devices with a measuring function.	open	open	open	not applicable
1.5.7.	The design of devices with a measuring function must incorporate a safety factor which ensures that the alarm threshold lies far enough outside the explosion and/or ignition limits of the atmospheres to be registered, taking into account, in particular, the operating conditions of the installation and possible aberrations in the measuring system.	open	open	open	not applicable
1.5.8.	Risks arising from software	open	open	open	not applicable
1.6.	Integration of safety requirements relating to the system	open	open	open	not applicable
1.6.1.	Manual override must be possible in order to shut down the equipment and protective systems incorporated within automatic processes which deviate from the intended operating conditions, provided that this does not compromise safety.	open	open	open	not applicable
1.6.2.	When the emergency shutdown system is actuated, accumulated energy must be dispersed as quickly and as safely as possible or isolated so that it no longer constitutes a hazard.	fulfilled	open	open	not applicable





1.6.3.	Hazards arising from power failure	open	open	open	not applicable
1.6.4.	Hazards arising from connections	fulfilled	open	open	not applicable
1.6.5.	Placing of warning devices as parts of equipment	open	open	open	not applicable
<b>2.</b>	<b>SUPPLEMENTARY REQUIREMENTS IN RESPECT OF EQUIPMENT</b>				
<b>2.0.</b>	<b>Requirements applicable to equipment in category M of equipment group I</b>				not applicable
<b>2.1.</b>	<b>Requirements applicable to equipment in category 1 of equipment group II</b>				not applicable
<b>2.2.</b>	<b>Requirements for category 2 of equipment-group II</b>				
2.2.1.	Explosive atmospheres caused by gases, vapours or mists				
2.2.1.1.	Equipment must be so designed and constructed as to prevent ignition sources arising, even in the event of frequently occurring disturbances or equipment operating faults, which normally have to be taken into account.	fulfilled	fulfilled	not applicable	fulfilled
2.2.1.2.	Equipment parts must be so designed and constructed that their stated surface temperatures are not exceeded, even in the case of risks arising from abnormal situations anticipated by the manufacturer.	fulfilled	fulfilled	not applicable	fulfilled
2.2.1.3.	Equipment must be so designed that the opening of equipment parts which might be sources of ignition is possible only under non-active conditions or via appropriate interlocking systems. Where it is not possible to render equipment non-active, the manufacturer must affix a warning label to the opening part of the equipment.	fulfilled	fulfilled	not applicable	fulfilled
2.2.2.	Explosive atmospheres caused by air/dust mixtures				
2.2.2.1.	Equipment must be designed and constructed so that ignition of air/dust mixtures is prevented, even in the event of frequently occurring disturbances or equipment operating faults which normally have to be taken into account.	fulfilled	not applicable	fulfilled	fulfilled
2.2.2.2.	With regard to surface temperatures, requirement 2.1.2.3 applies.	fulfilled	not applicable	fulfilled	fulfilled
2.2.2.3.	With regard to protection against dust, requirement 2.1.2.2 applies.	fulfilled	not applicable	fulfilled	fulfilled
2.2.2.4.	With regard to the safe opening of equipment parts, requirement 2.2.1.3 applies.	fulfilled	not applicable	fulfilled	fulfilled



2.3. Requirements applicable to equipment in category 3 of equipmentgroup II

not applicable

not applicable

not applicable

3. SUPPLEMENTARY REQUIREMENTS IN RESPECT OF PROTECTIVE SYSTEMS

Not in scope

Not in scope

Not in scope

Not in scope

