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Explosive atmospheres -
Part 0: Equipment - General requirements

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FOREWORD

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IEC 60079-0 has been prepared by IEC technical committee 31: Equipment for explosive atmospheres. It is an International Standard.

This eighth edition cancels and replaces the seventh edition, published in 2017. This edition constitutes a technical revision.

Users of this document are advised that interpretation sheets clarifying the interpretation of this document can be published. Interpretation sheets are available from the IEC webstore and can be found in the "history" tab of the page for each document.

The significance of the changes between IEC 60079-0:2017 (Edition 7) and IEC 60079-0:— (Edition 8) are as listed below:

		Type		
Explanation of the significance of the changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
Equipment replaced by *Ex Equipment* where appropriate	General	X		
Electrical equipment replaced by *equipment* where appropriate	General	X		
Use of term *degree of protection (IP Code)* reviewed throughout the document for consistency	General	X		
Clarify the use of *volume fraction* terms	General	X		
Clarified the *documentation* is more clearly specified as *schedule drawings*.	General	X		
Added NOTE 4 to address short-term thermal excursions	1	X		
IEC TS 60079-46 added	1	X		
IEC TS 60079-47 is added	1	X		
IEC 62784 is added	1	X		
ISO 80079-37 is added	1	X		
IEC 60079-20-1 is replaced by ISO/IEC 80079-20-1	2	X		
IEC 60243-2 is added	2	X		
Admitted term *minimum ignition temperature of an explosive gas atmosphere* added. Standard number corrected	3.6	X		
Definition for *reverse charging* clarified	3.7.10	X		
Figure added to typical *battery compartment*	3.7.14			
Definition for *brush discharge* added	3.8	X		
Definition for *bushing* clarified to be an insulating device	3.10	X		
Note 1 to entry for *certificate* revised to use declaration, acceptance, and certification terms in accordance with ISO/IEC 17000	3.13	X		
Note 1 to entry for *coating* added to clarify application in standards for explosive atmospheres	3.14	X		
Definition for *continuous operating temperature* revised to show that it is a manufacturer defined property. Added admitted term *continuous service temperature*	3.21	X		
Term *comparable converter* added along with domain <for use with electric machines> added	3.22.2	X		
Definition for dust clarified along with Note 1 to entry	3.25	X		
Note 2 to entry for *conductive dust* added to clarify how metal dust is considered	3.25.2	X		
Term *electrostatic bonding* along with admitted terms *electrostatic bonded* and *electrostatically bonded* added	3.30	X		
Note 1 to entry for *portable equipment* clarified to include equipment that is carried, but intended to be hand-held when in use	3.33.5	X		
Term *EPL G*- added	3.35.7	X		
Term *EPL D*- added	3.35.11	X		
Term and definition for *explosion-protected* added	3.36	X		
Definition for *Ex Component* clarified	3.39	X		

		Type		
Explanation of the significance of the changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
Definition for *Ex Component Enclosure* added	3.40	X		
Definition for *explosive atmosphere* revised to include mist in accordance with IEC 60079-10-1	3.42	X		
Note 1 to entry for *free space* clarified to address space in components	3.48	X		
Term and definition for *insulation coordination* added from IEC 60050-442-09-01	3.55	X		
Term and definition for *isolated circuit* added	3.55.1	X		
Term and definition for *macro-environment* added	3.55.2	X		
Definition for *mains circuit* clarified	3.55.3	X		
Note 2 to entry for *mains supply* clarified to address transients	3.55.4	X		
Term and definition for *micro-environment* added	3.55.5	X		
Term and definition for *overvoltage category* relocated to part of *insulation coordination*	3.55.6	X		
Term and definition for *pollution* added	3.55.7	X		
Term and definition for *pollution degree category* relocated to part of *insulation coordination*	3.55.8	X		
Term and definition for *local temperature* relocated from Table 3	3.59	X		
Definition for *propagating brush discharge* revised for clarity	3.67	X		
Term and definition for *Schedule of Limitations* added	3.79	X		
Definition for *special fasteners* revised to clarify they are used when a Type of Protection requires them	3.85	X		
Term and definition for *Specific Conditions of Use* added	3.86	X		
Term and definition for *supercapacitor,* including admitted term *electrochemical capacitor* added from IEC 60050-114-03-03	3.87	X		
Term and definition for "X" clarified. Note 2 to entry added to show that these are in addition to requirements for the installation design, selection, erection, inspection, maintenance, repair, and overhaul requirements	3.89	X		
General term *wiring* added	3.99	X		
Term and definition added for *field wiring*	3.99.1	X		
Term and definition added for *factory wiring*	3.99.2	X		
Term and definition added for *factory wiring within enclosures*	3.99.2.1	X		
Term and definition added for *factory wiring between enclosures*	3.99.2.2	X		
Term and definition for *worst-case,* including admitted terms *most unfavourable* and *most onerous* added	3.101	X		
Clarified that Equipment Groups is the correct term in accordance with the TC31 Good Working Practice	4.1	X		
Clarified the situation when equipment is evaluated for a particular gas atmosphere.	4.5	X		
The ambient temperature range is now a required marking. Where there are multiple ambient temperature range, and it is impractical to include all	5.1.1			C1

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Explanation of the significance of the changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
the ranges in the marking, a Specific Condition Use is used to provide the information.				
Clarified that the dust thickness is considered a layer	5.2	X		
Clarified the marking for Da uses the temperature marking prefix T_{200}	5.3.2.3.1	X		
Clarified the marking for Db	5.3.2.3.2	X		
Clarified the small component temperature requirements for where the electrical connection leads or thermal heat transfer connections are integrated into the body of part	5.3.3		X	
Clarified the application of the safety margin	5.3.4	X		
Added NOTE 3 to caution about cyber security risk	6.1	X		
Clarified the requirement for general fasteners in accordance with 9.1	6.2	X		
Clarified that the limit could be a temperature class or a maximum surface temperature	6.3	X		
Clarified that this sub-clause applies to large electric machines	6.4	X		
Clarified the requirements for a gasket adhesive	6.5	X		
Added NOTES 2 and 3, and deleted 6.6.3 to clarify the applicability for the standard to optical radiation	6.6.1	X		
Clarified applicability of user-controlled limit settings	6.6.1	X		
Included material specifications for other than plastics, elastomers, and cements	7.1.2.5		X	
Clarified in a NOTE why there are no requirements for minimum COT specification	7.2.2	X		
Introduced a reduced margin for TI or RTI of battery powered portable or personal equipment.	7.2.2		X	
Clarified protection from UV damage	7.3	X		
Clarified applicability of electrostatic charges on external non-metallic materials	7.4.1	X		
Clarified options available to avoid electrostatic charges	7.4.2	X		
Clarified and expanded the techniques that can be used to avoid electrostatic charges	7.4.2.2		B1	
Clarified and expanded the techniques that can be used to avoid brush discharges for Group I or Group II equipment	7.4.2.3		B2	
Clarified and expanded the techniques that can be used to avoid electrostatic charges for Group III equipment	7.4.2.4		B3	
Clarified and expanded the techniques that can be used to avoid brush discharges for Group III equipment	7.4.2.4		B4	
Clarified the requirements for external conductive parts	7.5			C2
Clarified the title of 9.1 to facilitate a clear reference to these requirements from other Type of Protection standards. Relocated the hex set screw requirements	9.1	X		
Combined all of the requirements for special fasteners into 9.2	9.2	X		
Changed the former NOTE 1 to a requirement to include the temperature range as part of the Schedule of Limitations	13.5			C3

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Explanation of the significance of the changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
Added new sub-clause on electrostatic bonding	15.1.3 15.2			C4
Clarified text to remove "for example" as metric and NPT are the only two permitted entry threads	16.2	X		
Added text to clarify the determination of branching point and entry point temperature for electric machines. This is consistent With IECEx DS/2018/002	16.6	X		
Clarified that "this standard" meant IEC 60079-34 as stated in the first paragraph	17.1	X		
Sub-clause 17.2 was reorganized to apply to ventilation and cooling. With the exception of 17.2.3, there was no intent to change requirements, only to better define for consistent application	17.2	X		
Requirements for thermal protection were added	17.2.3			C5
New clarifications for factory-wiring between enclosures	19			C6
Additional options for securing Gc or Dc connectors	20.1 c)		X	
Additional requirements for maintaining the degree of protection (IP Code) on an enclosure where an appliance inlet or socket-outlet is mounted. This is consistent with IECEx DS/2015/003	20.1			C7
Added reference to IEC 60079-17 and IEC 60079-19 for the use of replacement lamps.	21.5	X		
Added clarification that specific Type of Protection standards permit the connection of cells in parallel. This was previously a NOTE.	23.2	X		
Minor corrections to nominal voltage and maximum open-circuit voltage in accordance with latest cell standards	23.3	X		
Added Sodium Nickel Chloride cells	Table 13		X	
Added requirements for temperature considerations when using Sodium Nickel Chloride cells	23.5		X	
Clarified requirements for replacement cells or batteries	23.11	X		
Split Clause 24 into 24.1 schedule drawings and 24.2 related drawings	24	X		
Add 24.2 for related drawings	24.2	X		
Added clarification that, at the request of the manufacturer, more onerous tests than those specified may be performed.	26.1		X	
Clarified NOTE 2 to explain the logic of testing cemented joint windows	26.4.1	X		
Revise text to ensure that when the equipment is to be protected from impact or only has a low risk of mechanical danger, that the necessary information is provided to the end user via clearly worded "X" conditions.	26.4.2	X		
Clarify Table applicability to ensure consistent application	Table 14	X		
Specifically exclude non-metallic materials of glass and ceramic	26.4.3		X	
Clarify marking of degree of protection (IP Code)	26.4.5.2	A1		
Specifically exclude enclosures with no free internal volume.	26.4.5.1		X	

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Explanation of the significance of the changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
Clarify the reasons for specifying permitted positions of equipment with respect to temperature rise, and providing that information to the end user via an "X" condition.	26.5.1.1	X		
Clarify the need to consider both maximum and minimum service temperature	26.5.1.2	X		
Add permission to consider load diversity with respect to temperature.	26.5.1.2		X	
Clarify test voltages with respect to rated voltages	26.5.1.3	X		
Add clear permission for linear correction of temperature test results from different ambient temperatures. It is recognized that this has been common practice for many years.	26.5.1.3		X	
Clarify the requirements for test dust based on material rather than thermal conductivity.	26.5.1.3	X		
Clarification of test procedure to ensure consistent results.	26.5.3.2	X		
Added NOTE to refer back to 26.1 for permission to test at more onerous test temperatures.	26.7.2	X		
Added NOTE to refer back to 26.1 for permission to test at more onerous test temperatures.	26.8	X		
Clarified Table heading to be maximum service temperature	Table 16	X		
Added new Table 17 for thermal endurance tests specific to personal and portable equipment	Table 17		X	
Surface resistance test Clarify test procedure to ensure consistent results. Any prior test results from the procedure in Edition 7 and earlier are considered equivalent to the test procedure as revised in Edition 8.	26.13	X		
Measurement of capacitance Clarify test procedure to ensure consistent results. Any prior test results from the procedure in Edition 7 and earlier are considered equivalent to the test procedure as revised in Edition 8.	26.14	X		
Transferred charge test Clarify test procedure to ensure consistent results. Any prior test results from the procedure in Edition 7 and earlier are considered equivalent to the test procedure as revised in Edition 8.	26.17		X	
Removal of the permission to use an advisory marking in place of an "X" condition.	29.3e)			C8
Clarification of marking when Ex associated equipment or associated apparatus when combined for both gas and dust atmospheres.	29.3f)	X		
Added "h", "qb", "60079-30-1", and "60079-46" to align with the markings in those IEC 60079 and ISO/IEC 80079 series standards.	29.4b)		X	
Clarification of 29.4 on how to provide temperature information when multiple ambient temperature and external source of heating and cooling are present	29.4d)	X		
Removal of the option to use an "X" condition for ambient temperature rating. It is now a required marking per Clause 5.	29.4f)		X	