

27 October 2026

EUROBAT & ILA & CBI feedback on the Draft Delegated Regulation Ares(2026)9188325 and its Annexes, supplementing and amending Regulation (EU) 2023/1542, laying down minimum values for electrochemical performance and durability of rechargeable industrial batteries, technical and safety parameters, and standards concerning the battery passport.

The proposed amendments set out in this document are the outcome of extensive discussions among industry experts representing the three major industry associations: EUROBAT, ILA and CBI. The document puts forward three specific changes to the draft Delegated Act, supported by robust technical arguments to substantiate and justify the proposed recommendations.

Proposed change n°1 in the draft Delegated Act in page 4, point (6)

Original Text of the Draft Delegated Act:

- (6) Lead-based batteries are a key technology in many European industrial sectors. However, they often have inherently lower electrochemical performance and durability compared to other battery chemistries and can be used for applications with lower electrochemical performance and durability needs. Lead-based batteries should therefore be treated as a separate category when setting minimum values for electrochemical performance and durability parameters. In the case of residential battery energy storage systems, lead-based technology is rarely used in the Union. It is therefore unnecessary to set minimum values for this use.

Proposed slight but important change:

To add into to this paragraph the wordings: **‘as well as in critical infrastructure’**:

- (6) Lead-based batteries are a key technology in many European industrial sectors **as well as in critical infrastructure**. However, they often have inherently lower electrochemical performance and durability compared to other battery chemistries and can be used for applications with lower electrochemical performance and durability needs. Lead-based batteries should therefore be treated as a separate category when setting minimum values for electrochemical performance and durability parameters. In the case of residential battery energy storage systems, lead-based technology is rarely used in the Union. It is therefore unnecessary to set minimum values for this use.

Justification for this change:

To accurately reflect market realities, it is essential to explicitly refer to **critical infrastructure**, where lead-based batteries continue to play a vital role and are subject to stringent performance, reliability and safety requirements. When such batteries are replaced, the replacement batteries should meet

the minimum requirements established by the applicable conformance requirements to ensure operational safety, reliability and warranty compliance.

Proposed changes n°2 in Annex I, paragraph 3.2 on the pages 4 and 5

Original Text of the Draft Delegated Act:

Regarding the Stress factor determination, paragraph 3.2 on pages 4 and 5 of the Draft Delegated Act annex 1, includes two tables on ambient temperatures: Table 1 for on-demand batteries (OND) & Table 2 for repetitive energy supply batteries (REP), both tables apply across battery technologies.

Table 1
Assignment of ranges of reference conditions to individual stress factor contributions for on-demand batteries

Ambient temperature	
Range	$SF_{T,OND}$
below 0 °C	0.5
≥ 0 °C, < 10 °C	0.62
≥ 10 °C, < 17 °C	0.75
≥ 17 °C, < 22 °C	0.9
≥ 22 °C, < 27 °C	1
≥ 27 °C, < 33 °C	1.3
≥ 33 °C, < 40 °C	2
≥ 40 °C, < 48 °C	4
≥ 48 °C, < 55 °C	7
≥ 55 °C, < 60 °C	10
above 60 °C	15

Table 2
Assignment of ranges of reference conditions to individual stress factor contributions for repetitive energy supply batteries

Ambient temperature		Depth of discharge		Charge or discharge C-rate, whichever is larger	
Range	$SF_{T,REP}$	Range	SF_{DOD}	Range	SF_{Crate}
below -10 °C	2	below 10%	0.55	below 1 h ⁻¹	1
≥ -10 °C, < 0 °C	1.3	$\geq 10\%$, < 30%	0.67	≥ 1 h ⁻¹ , < 2 h ⁻¹	1.3
≥ 0 °C, < 10 °C	1.1	$\geq 30\%$, < 50%	0.83	≥ 2 h ⁻¹ , < 3 h ⁻¹	1.6
≥ 10 °C, < 17 °C	0.95	$\geq 50\%$, < 70%	1	above 3 h ⁻¹	3
≥ 17 °C, < 27 °C	1	$\geq 70\%$, < 90%	1.15		
≥ 27 °C, < 33 °C	1.3	above 90%	1.33		
≥ 33 °C, < 40 °C	1.8				
≥ 40 °C, < 48 °C	2.8				
≥ 48 °C, < 55 °C	5				
≥ 55 °C, < 60 °C	7.5				
above 60 °C	10				

Proposed changes:

We propose to maintain the current tables 1 and 2 applicable to OND and REP in the draft Delegated Act but to include in the title of both tables '**excluding lead-based batteries**' and to introduce a **separate set of tables applicable specifically to OND and REP lead-based batteries**;

The title of the existing Table 1 in the Delegated Act should read:

Table 1: Assignment of ranges of reference conditions to individual stress factor contributions for on-demand batteries, **except lead-based batteries**

The title of the existing Table 2 in the Delegated Act should read:

Table 2: Assignment of ranges of reference conditions to individual stress factor contributions for repetitive energy supply batteries, **except lead-based batteries**

Two new tables to include applicable for lead-based batteries only:

Table 1: Assignment of ranges of reference conditions to individual stress factor contributions for on-demand lead-based batteries

Ambient temperature	
Range (°C)	SF _{T,OND}
-10 ≤ T < -5	1.00
-5 ≤ T < 0	1.00
0 ≤ T < 5	1.00
5 ≤ T < 10	1.00
10 ≤ T < 15	1.00
15 ≤ T < 20	1.00
20 ≤ T < 25	1.15
25 ≤ T < 30	1.63
30 ≤ T < 35	2.31
35 ≤ T < 40	3.26
40 ≤ T < 45	4.62
45 ≤ T < 50	6.53
50 ≤ T < 55	9.23
55 ≤ T < 60	13.55
60 ≤ T < 75	16.00

Table 2: Assignment of ranges of reference conditions to individual stress factor contributions for repetitive energy supply lead-based batteries

Ambient temperature		Depth of discharge		Charge or discharge	
Range (°C)		Range		C-rate	
				whichever is larger	
Range (°C)	SF _{T,REP}	Range	SF _{DOD}	Range	SF _{Crate}
-10 ≤ T < 0	1.00	below 10%	0,55	below 1 h ⁻¹	1
0 ≤ T < 10	1.00	≥ 10%, < 30%	0,67	≥ 1 h ⁻¹ , < 2h ⁻¹	1.3
10 ≤ T < 15	1.00	≥ 30%, < 50%	0,83	≥ 2 h ⁻¹ , < 3h ⁻¹	1.6
15 ≤ T < 20	1.00	≥ 50%, < 70%	1	above 3 h ⁻¹	3
20 ≤ T < 25	1.15	≥ 70%, < 90%	1,15		
25 ≤ T < 30	1.63	above 90%	1,33		
30 ≤ T < 35	2.31				
35 ≤ T < 40	3.26				
40 ≤ T < 45	4.62				
45 ≤ T < 50	6.53				
50 ≤ T < 55	9.23				
55 ≤ T < 60	13.55				
60 ≤ T < 75	16.00				

Justification for the proposed changes:

We propose to introduce a **separate set of tables applicable specifically to OND and REP lead-based batteries** to remain consistent with the technology-neutral structure and approach of the draft.

The purpose of stress factors is to provide a practical normalization tool that allows durability results obtained under accelerated ageing conditions to be recalculated to the intended real-world operating conditions of the battery. Accelerated ageing tests are necessary because battery lifetime cannot be determined within an acceptable timeframe under normal operating conditions. Such tests rely on the well-established principle that the rates of electrochemical and chemical degradation reactions generally increase with temperature. This temperature dependence is commonly described by Arrhenius-type relationships.

However, battery ageing is not governed by a single degradation mechanism. Different battery technologies exhibit different ageing mechanisms, and even within a single technology the dominant degradation mechanisms may change over the temperature range. As a result, a universal Arrhenius equation cannot accurately describe ageing behaviour for all battery technologies and operating conditions.

For practical engineering applications, the Van't Hoff rule is used since decades in the lead battery industry successfully and widely accepted as an approximation. Proposed tables 1 and 2, assigning ranges of reference conditions to individual stress factor contributions for OND and REP lead-based batteries, are based on reference temperature of 20°C. No lifetime benefit is assumed for operation below 20°C. For temperatures above 20°C, stress factors are derived from an average Van't Hoff-type approximation corresponding to a doubling of ageing rate for each 10 °C increase in temperature.

The rule assumes that the reaction rate approximately doubles for every 10°C increase in temperature, corresponding to an approximate 50% reduction in service life. While this approach is a simplification and should not be interpreted as a precise scientific model, it provides a pragmatic and transparent method for deriving temperature-related stress factors.

Nevertheless, even the Van't Hoff approximation should not be extrapolated over the entire temperature range because degradation mechanisms and ageing behaviour change at both elevated and reduced temperatures.

Therefore, it is proposed that:

1. A common temperature correction approach should be applied to on-demand (OND) and repetitive energy supply (REP) batteries.
2. Temperature stress factors should be applied only for temperatures above the reference temperature of 20°C.
3. For temperatures below 20°C, the stress factor should be set equal to 1.0, i.e. no lifetime benefit should be assumed.
4. Temperature stress factors should be defined as average values for discrete temperature intervals (e.g. 5°C or 10°C increments) between 20°C and 60°C.

The stress factor concept should remain a simple normalization tool and should not attempt to serve as a detailed lifetime prediction model for all battery chemistries and use cases.

Furthermore, the proposed 2026 draft introduces an inconsistency in the treatment of low-temperature operation. For OND batteries, stress factors below 20°C are lower than 1, implying that operation at reduced temperatures increases the expected service life. In contrast, for REP batteries, stress factors below 20°C are greater than 1, implying a reduction in service life. This inconsistent treatment is not

scientifically justified, particularly as both battery categories may employ identical electrochemical technologies.

For lead-based batteries in particular, operation at lower temperatures generally results in reduced charge acceptance and may increase the risk of incomplete recharge, sulphation and associated premature loss of capacity. Consequently, operation below 20°C should not automatically be considered beneficial for service life.

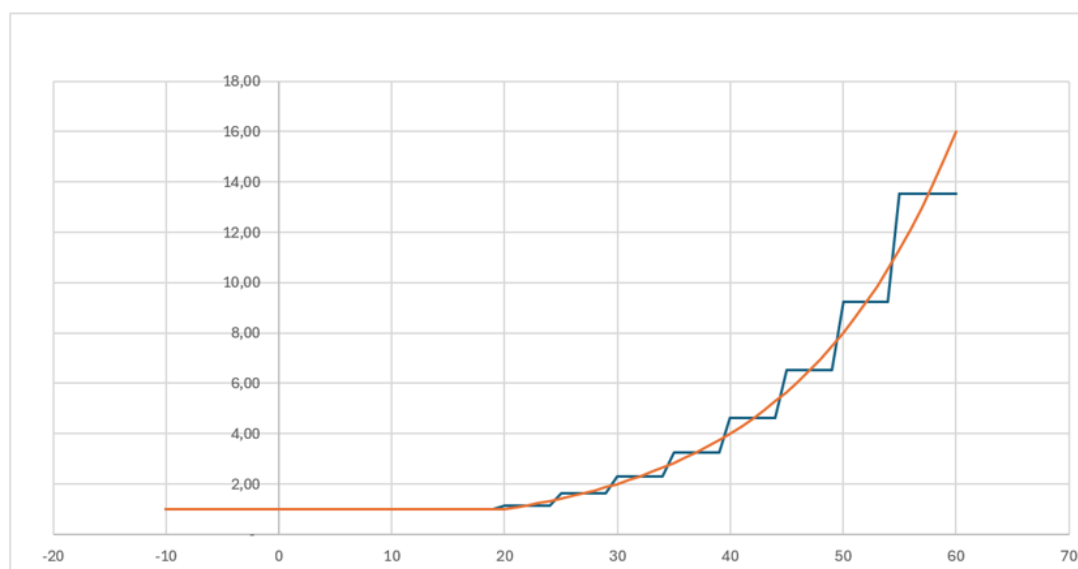


Figure: Stress factor for temperature based on Van't Hoff rule and an approximation based on the rule with 5K classes

Proposal for change n°3 in Annex II, point (2) on Safety testing requirements

Original Text in the Draft Delegated Act:

- (2) Annex V is amended as follows:
- (a) in point 8, the first sentence is replaced by the following: 'The safety performance of a battery in internal short-circuit situations shall be addressed by thermal propagation protection as set out in point 6.'

Proposed changes:

To add to the point (2) the sentence '**This safety requirement is not applicable to lead- and nickel-based batteries.**'

- (2) Annex V is amended as follows:

(a) in point 8, the first sentence is replaced by the following: 'The safety performance of a battery in internal short-circuit situations shall be addressed by thermal propagation protection as set out in the point 6. **This safety requirement is not applicable to lead- and nickel-based batteries**'.

Justification for the proposed change:

Aligned with risk-based, technology-neutral approach, and given the fundamentally different thermal runaway and fire-risk characteristics of lead-based and nickel-based batteries compared with lithium-based batteries, thermal propagation protection requirements should be proportionate to the specific risks associated with each battery technology. Accordingly, such requirements should not be applied to lead-based and nickel-based batteries where the relevant thermal propagation hazards are not present or do not warrant such protection.

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About EUROBAT:

EUROBAT is the leading association for European automotive and industrial battery manufacturers, covering all battery technologies, and has 36 members. The members and staff work with all policymakers, industry stakeholders, NGOs and media to highlight the important role batteries play for decarbonised mobility and energy systems as well as all other numerous applications.