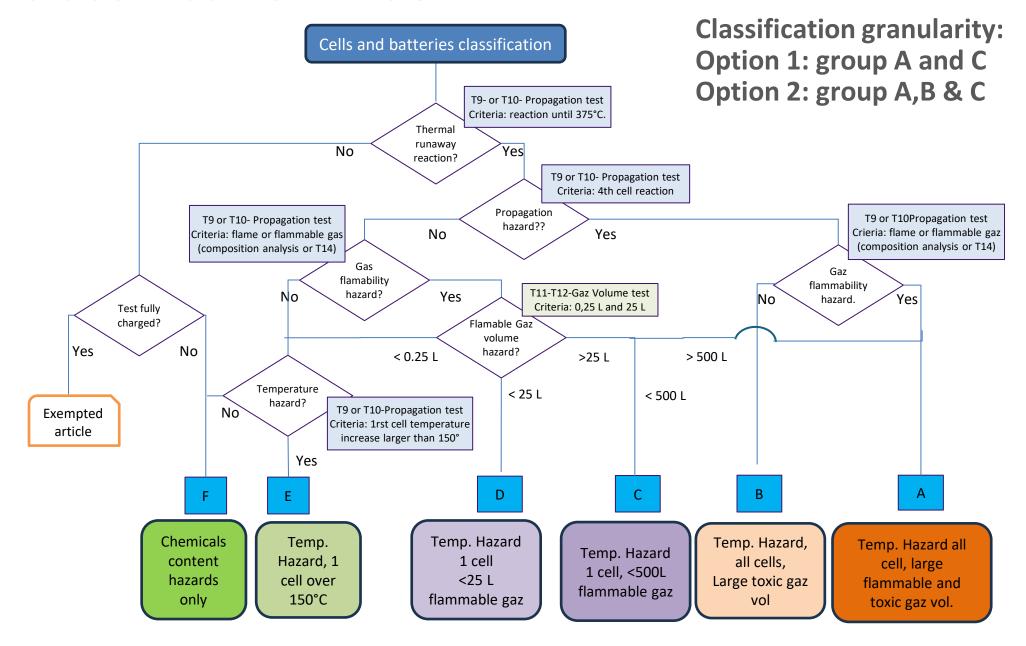
New classification tree



Process for the new classification of a cell or battery (1)

Objective

Assignement of the initial cell or battery hazard category

Identification of applicable mitigations at product level

Assignment of the product hazard category as transported

Identification of applicable UN number and proper shipping name

Method

Test a: apply T9 to T12 to the product as needed

Identify relevant SOC for transport, relevant battery design mitigations or others;

Test b: apply T9 to T12 to the product as transported as needed Identify product category and identification according to the UN table parag 2.9.6

Result

Define the maximum hazard category based on test result or similarity analysis

Define the product description as transported

Define the hazards category of the product as transported based on test or similarity analysis.

Define the product identification and related transport conditions

Note: the results of at least one of the two tests (Test a or Test b) must be available to use the classification

Process for the new classification of a cell or battery (2)

Objective

Identification of applicable product protection at packaging level

Identification of applicable hazard mitigation at packaging level

Identification of applicable hazard containement at packaging level.

Final product and package identidication and related transport conditions.

Method

Identify relevant mitigation applicable at packaging level

Test c: apply T13 to the product to determine a standardized air gap preventing propagation, based on test result or similarity analysis

Test d: define and apply the test demonstrating containment of the hazard (ref SAE 6413 or P911)

Identify product category and identification according to the classification tree and apply packing instructions and mrking requirments

Result

Identify the relevant applicable Packing instructions or the exemption

Define the packaging description for hazard mitigation applicable to the product.

P940 or P941

Define the packaging description for hazard containement applicable to the product and the package.

P942

Define applicable UN number, propper shipping name and packaging of the product, marking or labelling and attached documents.

Note: according to the product properties, the manufacturer can decide what are the more appropriate safety conditions applicable at packaging level and only apply the relevant test method.

Process for the new classification of a battery in or with equipment (3)

Objective

Assignement of the initial battery in equipment hazard category

Identification of applicable mitigations at equipment level

Assignment of the product hazard category as transported

Identification of applicable UN number and proper shipping name

Method

Use the result of the process applied to the cells or batteries used

Identify relevant SOC limitations and propagation mitigations related to the battery in equipment.

Test b: apply T11, T12 or T13 to the product as transported as needed, or propose similarity analysis.

Identify product category and identification according to the UN table parag 2.9.6

Result

Define the maximum hazard category

Define the product description as transported

Define the hazards category of the product as transported according to the classification tree

Define the product identification and related transport conditions

Note: the results of at least one of the two tests (Test a or Test b) must be available to use the classification

Process for the new classification of a battery in or with equipment (4)

Objective

Identification of applicable product protection at packaging level

Identification of applicable hazard mitigation at packaging level

Identification of applicable hazard containment at packaging level.

Final product and package identification and related transport conditions.

Method

Identify relevant mitigation applicable at packaging level

Test c: apply T13 to the product to determine a standardized air gap preventing propagation, based on test result or similarity analysis

Test d: define and apply the test demonstrating containment of the hazard (ref SAE 6413 or P911)

Identify product category and identification according to the classification tree and apply packing instructions and marking requirments

Result

Identify the relevant applicable Packing instructions or the exemption

Define the packaging description for hazard mitigation applicable to the product.

P940 or P941

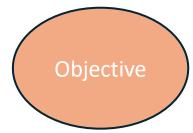
Define the packaging description for hazard containment applicable to the product and the package.

P942

Define applicable UN number, proper shipping name and packaging of the product, marking or labelling and attached documents.

Note: according to the product properties, the manufacturer can decide what are the more appropriate safety conditions applicable at packaging level and only apply the relevant test method.

Process for the new classification : other mitigations







Identification of mitigations beyond packaging

Relevant mitigation by quantity limitation and transport conditions (ventilation)

Identify the relevant mitigations applicable to the used Packing instructions per transport mode

Note: according to the product properties, the manufacturer can decide what are the more appropriate safety conditions applicable at packaging level and only apply the relevant test method.

Maximum product Hazards characterization:	Product testing at 100% SOC and classification in Divisions	Chemical Content Hazards Only Division 9 F	No propagation , heat, Gas < 0.25 L Division 9 E	No propagation, heat, Flammable 0.25L< Gas < 25 L Division 9 D	No propagation heat, flammable 25L< Gas <500 L Division 9 C	Propagation or not HEAT, Non flam. Large Q. Gas Division 9 B	Propagation or not HEAT, Flammable Large Q. Gas Division 9 A
Hazard mitigation at product level	Main methods: Cell and battery SOC, Battery design	/	/ Battery: propagation prevention	Cell: SOC Battery: propagation prevention	Cell: SOC Battery: propagation prevention	Cell: SOC Battery: propagation prevention	Cell: SOC Battery: propagation prevention
Product Hazard as transported characterization, Identification	If needed, product test at SOC and battery test, Assignment of UN number and prop. shipping name	UN 3600 (BATTERY, SODIUM and LI ION) UN 3601 (LI METAL) Division 9 F	UN 3602 (BATTERY SODIUM and LI ION) UN 3603 (LI METAL) Division 9 E	UN 3604 (BATTERY SODIUM and LI ION) UN 3605 (LI METAL) Division 9 D	UN 3606 (BATTERY SODIUM and LI ION) UN 3607 (LI METAL) Division 9 C	UN 3606 (BATTERY SODIUM and LI ION) UN 3607 (LI METAL) Division 9 B	UN 3608 (BATTERY SODIUM and LI ION) UN 3609(LI METAL) Division 9 A
Product protection at packaging level	Packaging selection and packaging instructions	general provisions, drop test? or strong packaging or casing PI 940 No short circuit/no activation	PG II?? or Strong, rigid outer Packaging, or casing PI 940 No short circuit/no activation	PG II or Strong, rigid outer Packaging, or casing PI 941 No short circuit/no activation	PG II or Strong, rigid outer Packaging, or casing PI 941 No short circuit/no activation	PG II PI 941 No short circuit/no activation	PG II PI 941 No short circuit/no activation
Hazard mitigation at packaging level	Product Gap testing and Complementary Packaging Instructions	/	/	/	+ Propagation prevention by separations or others methods PI 942	+ Propagation prevention by separations or others methods PI 942	+ Propagation prevention by separations or others methods PI 942
Hazard containment at packaging level	Package/material testing if needed, Complementary Packaging Instructions				+ Non-combustible, non-conductive material PI 943	+ Non-combustible, non-conductive material PI 943	+ Non-combustible, non-conductive material PI 943