



## FORM 1: PROPOSAL FOR A NEW FIELD OF TECHNICAL ACTIVITY

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<b>Proposer</b> SAC	<b>ISO/TS/P</b> TS/P 284

A proposal for a new field of technical activity shall be submitted to the ISO Central Secretariat, which will assign it a reference number and process the proposal in accordance with the [ISO/IEC Directives Part 1, Clause 1.5](#). The proposer may be a member body of ISO, a technical committee, subcommittee or project committee, the Technical Management Board or a General Assembly committee, the Secretary-General, a body responsible for managing a certification system operating under the auspices of ISO, or another international organization with national body membership. Guidelines for proposing and justifying a new field of technical activity are given in the [ISO/IEC Directives Part 1, Annex C](#).

### **Proposal** (to be completed by the proposer)

**Title of the proposed new committee (The title shall indicate clearly yet concisely the new field of technical activity which the proposal is intended to cover).**

Lithium

**Scope statement of the proposed new committee (The scope shall precisely define the limits of the field of activity. Scopes shall not repeat general aims and principles governing the work of the organization but shall indicate the specific area concerned).**

Standardization in the field of lithium mining, concentration, extraction, separation and conversion to useful lithium compounds/materials (including oxides, salts, metals, master alloys, lithium-ion battery materials, etc.) The work program includes terminology, technical conditions of delivery to overcome transport difficulties, unified testing and analysis methods to improve the general quality of lithium products.

Excluded: Battery

Note: Battery is a component and not a material, which can be directly used in electric vehicles, digital cameras, electric motorcycles, etc.

- The proposer has checked whether the proposed scope of the new committee overlaps with the scope of any existing ISO committee**
- If an overlap or the potential for overlap is identified, the affected committee has been informed and consultation has taken place between proposer and committee on**
- i. modification/restriction of the scope of the proposal to eliminate the overlap,**
  - ii. potential modification/restriction of the scope of the existing committee to eliminate the overlap.**
- If agreement with the existing committee has not been reached, arguments are presented in this proposal (under question 7) as to why it should be approved.**

**Proposed initial programme of work. (The proposed programme of work shall correspond to and clearly reflect the aims of the standardization activities and shall, therefore, show the relationship between the subject proposed. Each item on the programme of work shall be defined by both the subject aspect(s) to be standardized (for products, for example, the items would be the types of products, characteristics, other requirements, data to be supplied, test methods, etc.). Supplementary justification may be combined with particular items in the programme of work. The proposed programme of work shall also suggest priorities and target dates.)**

The proposer plans to develop three categories standards for lithium, the first category for basic standards, the second category for testing and analysis methods standards, and the third category for lithium product standards:

1. Basic standards
  - Terms and definitions
  - Packing, marking, transport and storage
2. Testing and analysis methods standards
  - Chemical analysis of lithium concentrates, metals, compounds and materials
  - Determination of particle size, specific surface area of lithium concentrates
3. Product standards

Standards of lithium products, from the upstream of elements concentrates to the downstream of materials, including elements reuse and recycling.

Priorities will be given to the items listed in the first and second categories, because the same understanding of definitions and common testing methods are essential for producers and users of lithium globally, and also are the base for development of international lithium standards in the next step.

The proposer would like to set the target date of the NPs by the end of 2020 given that the establishment of new TC is approved timely.

Standardization of lithium products will start when the definition and testing methods are outlined.

**Indication(s) of the preferred type or types of deliverable(s) to be produced under the proposal (This may be combined with the "Proposed initial programme of work" if more convenient).**

Deliverables preferred are all ISO International Standards (ISs) and documents at any level.

1. ISO standard "Terms and definitions of lithium" and "Designation system of lithium".
2. ISO standard "Packing, marking, transport and storage of lithium products".
3. ISO standards "Method for chemical analysis of lithium ", which will contain a series of 11 parts.
4. ISO standards "Methods for chemical analysis of lithium carbonate, lithium hydroxide monohydrate and lithium chloride ", which will contain a series of 16 parts.
5. ISO standards "Methods for chemical analysis of spodumene and lepidolite concentrates ", which will contain a series of 11 parts.
6. ISO standard "Lithium".
7. ISO standard "Lithium hydroxide monohydrate".
8. ISO standard "Spodumene concentrate".
9. ISO standard "Battery grade lithium carbonate".

**A listing of relevant existing documents at the international, regional and national levels. (Any known relevant document (such as standards and regulations) shall be listed, regardless of their source and should be accompanied by an indication of their significance.)**

There is no ISO standard set to directly describe lithium, but there are a few standards on lithium-ion battery systems. For example:

1. ISO 12405 "Electrically propelled road vehicles -- Test specification for lithium-ion traction battery packs and systems" (4 series).
2. ISO 18300:2016 "Electrically propelled vehicles -- Test specifications for lithium-ion battery systems combined with lead acid battery or capacitor".
3. ISO 17546:2016 "Space systems -- Lithium ion battery for space vehicles -- Design and verification requirements".
4. ISO 18243:2017 "Electrically propelled mopeds and motorcycles -- Test specifications and safety requirements for lithium-ion battery systems".

Relevant documents are as follows:

ASTM D3561 Standard Test Method for Lithium, Potassium, and Sodium Ions in Brackish Water, Seawater, and Brines by Atomic Absorption Spectrophotometry  
JIS k8994 lithium sulphate monohydrate  
JIS K8627 Lithium carbonate

China has built up a relatively full set of standards for lithium, containing about 100 national standards (GB) and industrial standards (YS).

Chinese national standards, for example:

1. GB/T 4369 Lithium
2. GB/T 20930 Lithium strip
3. GB/T 20252 Lithium cobalt oxide
4. GB/T 8766 Lithium hydroxide monohydrate
5. GB/T 11064 Methods for chemical analysis of lithium carbonate, lithium hydroxide monohydrate and lithium chloride (16 parts)
6. GB/T 33059 Methods for disposal and recycling of lithium ion battery material wastes.

Chinese industrial standard, for example:

1. YS/T 261 Spodumene concentrate
2. YS/T 638 Lithium carbonate for production of coloured phosphor powder
3. YS/T 509 Methods for chemical analysis of spodumene and lepidolite concentrates (11 parts)

**A statement from the proposer as to how the proposed work may relate to or impact on existing work, especially existing ISO and IEC deliverables. (The proposer should explain how the work differs from apparently similar work, or explain how duplication and conflict will be minimized. If seemingly similar or related work is already in the scope of other committees of the organization or in other organizations, the proposed scope shall distinguish between the proposed work and the other work. The proposer shall indicate whether his or her proposal could be dealt with by widening the scope of an existing committee or by establishing a new committee.)**

Because there is no TC or PC on lithium, its alloys and lithium compounds, directly within ISO or IEC currently, work of the new lithium and lithium alloys committee, given that it could be approved, will have no overlap with the existing work of ISO and IEC.

However, lithium can be used as an additive element for the production of magnesium-lithium alloys or aluminium-lithium alloys, and it can also be used to produce lithium-ion batteries, which are used in electric vehicles or various devices. It is necessary to maintain proper communication with ISO/TC 79 Light metals and their alloys, IEC /TC 21 Secondary cells and batteries and ISO/TC 22/SC 37 Electrically propelled vehicles, etc.

It should be noted that the new TC concerned about lithium materials and their physical and chemical properties. The scope of ISO TC 79 does not include upstream added materials, IEC / TC 21 concerned about battery performance, and ISO TC 22 / SC 37 focuses on the overall safety and performance of the battery system. The scope of the new TC is different from the existing ISO TCs.

**A listing of relevant countries where the subject of the proposal is important to their national commercial interests.**

Argentina (Litio Minera Argentina S.A., Ganfeng Litio Argentina S.A)  
Australia (Talison Lithium Pty Ltd., Galaxy Resources Ltd),  
Belgium (Umicore Group),  
Bolivia (Yacimientos de Litio Boliviano),  
Brazil (Mibra mine),  
Canada (American Lithium Energy, Nemaska Lithium, Lithium Chile Inc),  
Chile (SQM), USA (Albemarle Corp., Livent Corp.),  
China (Tianqi lithium Co., Ltd., Ganfeng lithium Co., Ltd.),  
Congo (manono lithium mine project),  
Finland (Keliber project),  
Germany (Chemetall),  
India (Manikaran Power Ltd.),  
Japan (NICHIA Corp., Sumitomo Metal Mining Co.Ltd.),  
Korea (LG Chem., SAMSUNG SDI CO., LTD.),  
Mexico (Sonora Corp.),  
Portugal (Lusorecursos Portugal Lithium),  
Russia (Russian Chemical Smelting Co., Ltd),  
Zimbabwe (Kamativi mine).

**A listing of relevant external international organizations or internal parties (other ISO and/or IEC committees) to be engaged as liaisons in the development of the deliverable(s). (In order to avoid conflict with, or duplication of efforts of, other bodies, it is important to indicate all points of possible conflict or overlap. The result of any communication with other interested bodies shall also be included.)**

A liaison with ISO/TC 22/SC 37 Electrically propelled vehicles and IEC /TC 21 Secondary cells and batteries shall be created.

A liaison with ISO/TC 79 Light metals and their alloys shall be created.

**A simple and concise statement identifying and describing relevant affected stakeholder categories (including small and medium sized enterprises) and how they will each benefit from or be impacted by the proposed deliverable(s).**

At present, manufactories of lithium product, includes Tianqi lithium Co., Ltd., China, SQM, Chile, Albemarle Corp., Livent Corp., USA, Talison Lithium Pty Ltd., Australia, American Lithium Energy, Canada, etc. Consumption of lithium product, includes Umicore Group, Belgium, Samsung SDI, Korea, NICHIA Corp., Japan, etc. Global lithium market is strong. The main products are lithium carbonate, lithium hydroxide, lithium chloride, lithium metal, etc. Global lithium production is about 280kt lithium carbonate equivalent (LCE) in 2018.

There is no doubt that all the stakeholders will benefit from development of international standards on lithium and lithium alloys terms and definitions, designation system, testing method, and technical requirements on composition of products, as well as packaging and transportation, etc., which will help them to reach consensus both in production and trade, promote exchange of lithium technologies globally, bring out great social value and create huge potential commercial value.

**An expression of commitment from the proposer to provide the committee secretariat if the proposal succeeds.**

China is willing to undertake the work of the new TC secretariat when the proposal is approved.

**Purpose and justification for the proposal. (The purpose and justification for the creation of a new technical committee shall be made clear and the need for standardization in this field shall be justified. Clause C.4.13.3 of [Annex C](#) of the ISO/IEC Directives, Part 1 contains a menu of suggestions or ideas for possible documentation to support and purpose and justification of proposals. Proposers should consider these suggestions, but they are not limited to them, nor are they required to comply strictly with them. What is most important is that proposers develop and provide purpose and justification information that is most relevant to their proposals and that makes a substantial business case for the market relevance and the need for their proposals. Thorough, well-developed and robust purpose and justification documentation will lead to more informed consideration of proposals and ultimately their possible success in the ISO IEC system.)**

Lithium is the lightest alkali metal element and has been widely used in the traditional industrial fields such as glass, ceramics, petrochemical, metallurgy, textile, synthetic rubber, lubricating materials and medical treatment. In recent years, application of lithium in the field of battery energy, aerospace and nuclear is growing rapidly. Lithium has become a very important industrial product of metal, which is well known as the "21st century energy metal".

More and more countries have been aware of the importance of lithium in their supply chains. Some of them, such as USA, Australia, Canada, etc. increased on lithium production in recent years. World lithium supply pattern is now being diversified.

Global lithium resources are mainly distributed in salt lakes and various ores. The salt-lake brine resources are mainly concentrated in the lithium triangle of South America (Chile, Argentina and Bolivia). The hard rock lithium resources are mainly concentrated in Australia, Canada and Africa, Congo, Zimbabwe and other countries.

China, South Korea and Japan are major consumers of lithium product. International trade of lithium product is becoming more frequent.

Spodumene concentrate production capacity exceeds 2000kt in Australia. Lithium production exceeds 100kt LCE in Chile, Argentina and other South American countries. Lithium production is about 167kt LCE in China.

In summary the purpose for the proposal is to start development of international standards on lithium materially, to promote production, fair trade and sustainable procurement of lithium globally

**Signature of the proposer**

*Further information to assist with understanding the requirements for the items above can be found in the [Directives, Part 1, Annex C](#).*