

Quarterly **NEWS**  
**LETTER**

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**BeST**

Beryllium Science & Technology Association

**Dear Valued Readers**

Welcome to the spring edition 2018 of the Quarterly Newsletter.

The Beryllium Science and Technology Association is a non-profit organization based in Brussels.

BeST represents the suppliers of Beryllium in the EU market, as well as traders and industries who rely on the unique properties of beryllium to design for miniaturisation, energy conservation, greater reliability and longer product life.

It aims to promote sound policies, regulations, science and actions related to the use of beryllium and to serve as an expert resource for the international community on the benefits and criticality of beryllium applications

Our mission is to provide the best available scientific information related to Beryllium, and to ensure that its benefits to society in critical applications are realised and embraced and maintained by industry, governmental authorities and the general public. It is also the objective of BeST to promote good practices in the workplace, in order to protect workers handling beryllium containing materials.

BeST has developed a specific Product Stewardship Program, Be Responsible, accessible at [www.berylliumssafety.eu](http://www.berylliumssafety.eu).

BeST would like to thank you all for your great support.

Kind regards,

Dr. Andreas Köster, Chairman of BeST

**FEATURED :**

U.S. List includes Beryllium

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Worker Safety in the U.S

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BeST supports safe  
worker campaign

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Rare emerald : beryl found  
in Russian Urals

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# Where protection starts : safe working with Beryllium

On 5 April 2018, The European Commission published its **proposal** for a binding occupational exposure level (OEL) for the 3rd wave of substances including Beryllium and its inorganic compounds, to be reviewed under the "Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work" (CMD).

The European Commission has **proposed an OEL of 600 ng/m<sup>3</sup> for a transition period of 5 years, to be subsequently reduced to 200 ng/m<sup>3</sup>.**

BeST endorses the OEL of 600 ng/m<sup>3</sup> for the transitional period of five years as this level is both protective and feasible.

However, BeST recalls that 200 ng/m<sup>3</sup>, to be implemented after the transitional period, is not feasible in all industrial processes and could have severe economic impacts. BeST recalls also that the current mean OEL in EU, and in particular in the countries where there is a beryllium activity, is 2000 ng/m<sup>3</sup>. 600 ng/m<sup>3</sup> is therefore an important effort for the industry and an important progress for the protection of workers.

The proposal was published along with the accompanying Summary of the Socio-Economic Impact Assessment conducted by RPA. Comments on the proposal can be submitted to the European Commission – Directorate-General for Employment, Social Affairs and Inclusion until 04 June 2018

More information [here](#).

BeST will submit detailed comments and has published a **position paper**. This is shared on the website. BeST welcomes all comments.

To see the European Commission's proposal for the 3rd wave of substances to be reviewed under the Carcinogen and Mutagens Directive, please [click here](#).



## BeST supports safe worker campaign



On 20 March 2018, EU-OSHA (European Agency for Safety and Health at work) held an informative day on its upcoming campaign on hazardous substances at the workplace.

The 2018-2019 campaign – Healthy Workplaces Manage Dangerous Substances, aims to raise awareness of the risk posed by dangerous substances in the workplace and promote a culture of risk prevention.

Speakers at the event included the European Commission, Siemens AG, UNI Europa and EU-OSHA.

BeST attended the event and endorses the campaign. BeST will submit its application to become an official campaign partner, in order to promote its Voluntary Product Stewardship Program **Be Responsible**, and directly reach the interested workers on the ground.

The previous campaign, entitled Healthy Workplaces for All Ages, addresses the issues associated with an ageing workforce.

To read more about EU-OSHA, [click here](#).

## EU to do more on sourcing of Critical Raw Materials

The need for enhancing primary and secondary production of Critical Raw Materials emerged at the 10th edition of the CRM Day held on 21 March 2018.

The event, entitled “Challenges to Primary & Secondary Production of CRMs”, gathered interested stakeholders and government representatives.

BeST, as member of the Critical Raw Materials Alliance, participated to the event.

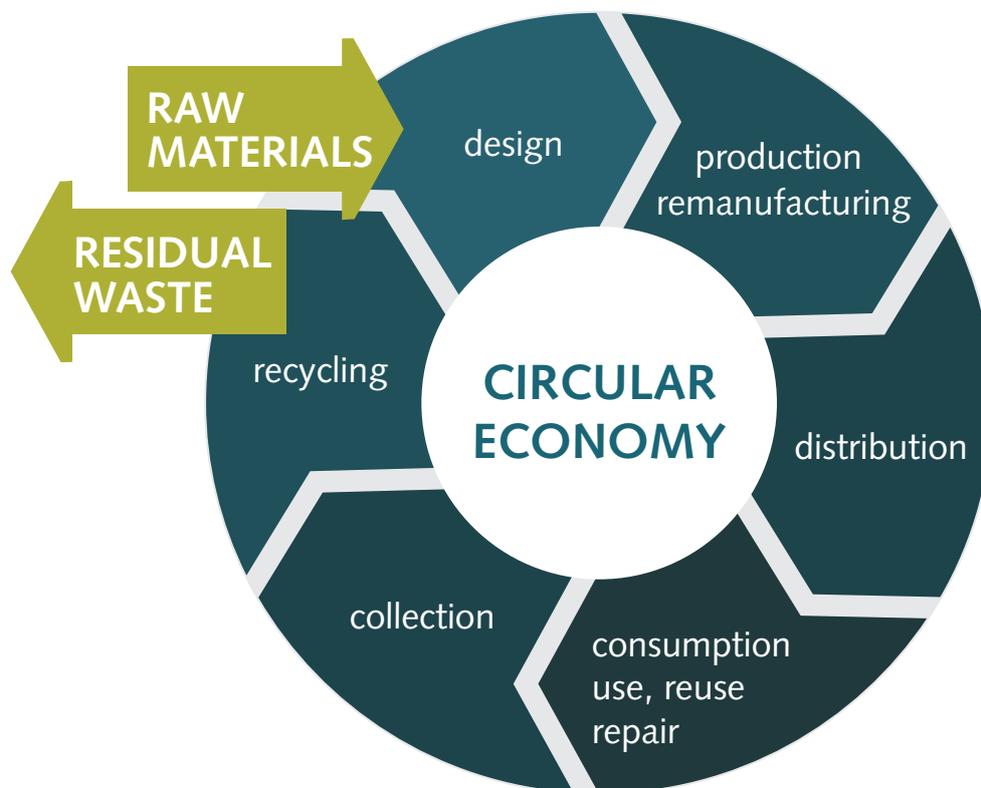
The speakers of the two panels identified the main challenges to primary and secondary production of CRMs and opened the floor to a constructive dialogue on ways to address these obstacles.

Speakers included: (i) Mr. Kalin Tomov, Head of the Competitiveness Sector at the Bulgarian Permanent Representation, as keynote speech; (ii) Ms. Blažena Hamadová from MINLEX; (iii) Mr. Richard Clemmey from Tertiary Minerals plc; (iv) Mr. Jan Tygat, Director Government Affairs EU-Benelux at UMICORE; (v) Mr. Bert Witkamp – EAFO & AVERE Project Manager.

All speakers at the event called for the EU to further focus on sourcing of Critical Raw Materials in the EU.

The event concluded with a presentation by Mr. Martin Tauber, President of the CRM Alliance, on the Charter on Critical Raw Materials Policy, recently developed by the CRM Alliance. The Charter outlines core actions considered relevant for CRMs and aims to provide recommendations to the EU and the wider stakeholder community on the future CRM policy.

To read more [here](#).



## Critical Raw Materials & Circular Economy

On 16 January 2018, the European Commission published its Report on Critical Raw Materials and the Circular Economy.

The report is divided into three parts and is based on the recently published JRC report (December 2017).

The report is part of the Action Plan on Circular Economy and aims at providing key data sources, promoting best practices and identifying possible further actions. It supports the implementation of the renewed EU Industrial Policy Strategy, presented by President Juncker in his State of the Union Address 2017, which highlights the importance of adapting to changes brought

on by the transition to a low-carbon and more circular economy, as well as the strategic importance of raw materials for the EU manufacturing industry.

The Commission welcomes the views of Member States and stakeholder on the report and will use the Raw Materials Supply Group (a Commission expert group) and the European Innovation Partnership on Raw Materials, as well as other relevant (specific) forums to consult on further measures to be taken so as to properly address issues in relation to CRMs in the transition to a circular economy.

To read the report, please [click here](#).

## U.S. includes Beryllium on Critical Materials List



On 16 February 2018, the U.S. Government published a draft list of 35 minerals it deems critical to both the economic and national security of the country.

Beryllium is considered critical as in the EU (27 critical raw materials in the 2017 EU list).

The draft list is the result of President Trump's Executive Order of 20 December 2017 instructing his deputies to devise a strategy to reduce the U.S.'s reliance on critical minerals that are imported from other countries.

The issue of critical minerals is now a top policy priority coupled with new plans to expand mining production in the U.S.

The order follows the publication of a report from the Department of the Interior and the U.S. Geological Survey (USGS), first report to be published since 1973, which concluded that 20 out of the 23 critical minerals used by the U.S. are sourced from China.

The report addressed 23 of the minerals that are of most need for national defense, economy and industry. Beryllium appeared amongst the 23 minerals assessed.

**The U.S. draft list includes the following minerals:**

1. Aluminium
2. Antimony
3. Arsenic
4. Baryte
5. Beryllium
6. Bismuth
7. Cesium
8. Chromium
9. Cobalt
10. Fluorspar
11. Gallium
12. Germanium
13. Graphite (Natural)
14. Hafnium
15. Helium
16. Indium
17. Lithium
18. Magnesium
19. Manganese
20. Niobium
21. Platinum Group Metals
22. Potash
23. Rare earth elements group
24. Rhenium
25. Rubidium
26. Scandium
27. Strontium
28. Tantalum
29. Tellurium
30. Tin
31. Titanium
32. Tungsten
33. Uranium
34. Vanadium
35. Zirconium

# Rare emerald-beryl discovered in Russian Urals

According to an article published by GeologyIn, an emerald weighing more than 1.5 Kg has been found at the Malyshevsky emerald-beryllium ore field.

The discovery was communicated by Russia's state hi-tech corporation Rostec and is presumed to be the largest stone unearthed at the mine in a decade.

The Malysheya emerald-beryllium mine is considered by some as one of the largest emerald deposits.

The deposit is expected to be mined at full capacity this year, which amounts to 400 tons of ore per year, and the emerald deposits could exceed 60 tons.

Rostec has declared that it wants to develop new deposits of precious and semiprecious stones at the Malyshevsky field, including emeralds, alexandrites and beryllium

The company plans to modernize the existing production complex along with the introduction of new technology.

BeST recalls that the OEL in Russia and Kazakhstan is 1000 ng/m<sup>3</sup>, which is feasible and protective of workers against Chronic Beryllium Disease. This enables to develop mining activities which would not be possible in the EU with a too low OEL .

**Kazakh scientists obtain  
U.S. patents for Beryllium  
extraction technology**

According to an article published in KAZINFORM, a team of Kazakh scientists has been granted three U.S. patents for unique technologies of beryllium extraction.

The team of scientists of the Al-Farabi Kazakh National University have developed a new technology of beryllium extraction that was recognized internationally and granted a U.S. patent as the most cost-effective and unique environmentally friendly technology.

The team has already collected a total of three U.S. patents. Indeed, two previous patents were achieved by the team jointly with the employees of the beryllium laboratory based in the Ulba Metallurgical Plant, company based in Kazakh and producers of Uranium, Beryllium, Tantalum and Niobium products.

No other research group has successfully obtained three consecutive patents in such a short time and in the same field of research and technology.

Production facilities are largely using the technology of beryllium extraction and refining and output of finished-products.

Indeed, by introducing the new technologies, the investors have succeeded in obtaining over 150 new types of export-oriented products made of Beryllium Oxide with unique electrophysical and chemical properties.

These products are exported to defense enterprises of Russia, Ukraine, Belarus, Poland and Israel while the U.S., China, Russia and other advanced countries of the world have already showed high interest in using the technology at their own enterprises in the past years.

## Worker Safety in the U.S.

The U.S. Occupational Safety and Health Administration (OSHA) has delayed enforcement of its final rule on beryllium (**29 CFR 1910.1024**) to 11 May 2018. This action was taken to ensure that stakeholders are aware of their obligations and to allow OSHA and industry representatives to negotiate specific technical changes to the rule which lowers the permissible exposure limit (PEL) to beryllium in general industry.

In January 2017, OSHA issued a final rule to reduce the eight-hour PEL to 200 nanograms per cubic meter (ng/m<sup>3</sup>) from the previous level of 2000 ng/m<sup>3</sup>. The values in the U.S. differ from the values applied in the EU due to the different sized particles considered (Thoracic fraction in the US and inhalable fraction in the EU). The PEL of 200 ng/m<sup>3</sup> - thoracic fraction - is considered equivalent to an occupational exposure level of 600 ng/m<sup>3</sup> - inhalable fraction -, as recommended by BeST in its "Be Responsible" Voluntary Product Stewardship Programme.

In addition to controlling exposure to below the PEL, the rule also requires additional protections, including personal protective equipment, medical exams and other medical surveillance and training.

## The Web Space Telescope achieves outstanding results



Engineers at Rochester's Harris registered excellent results in series of critical tests they engineered on NASA's new Webb Space Telescope.

For three months, Harris scientists sealed the Webb Space Telescope into a gigantic cryogenic vacuum chamber at the Johnson Space Center in Houston and subjected it to the airless conditions and minus 400 degree temperatures it would encounter in space.

Meant to be a successor to the Hubble Space Telescope, the Webb Space Telescope was planned to be stationed at a stable point in space where its array of hexagonal beryllium mirrors can scan the infrared spectrum into the farthest reaches of space and seek out the oldest light in the universe, possibly offering a glimpse of the birth of the universe itself.

The tests were executed on the telescope with the objective of excluding those malfunctions and defects that affected the Hubble Space Telescope after its launch and which were repaired with an expensive space shuttle mission and spacewalk.

# ITER : ten years of global cooperation

ITER (International thermonuclear experimental reactor project) is now 10 years old having just recently reached a halfway milestone with half the project built even though not yet assembled and activated.

It is one of the few genuine examples of global scientific cooperation as it consists of a partnership involving the EU, US, China, India, Japan, South Korea and Russia.

The project aims at recreating the sun's energy by mimicking its core chain reactions through a nuclear fusion. Its end goal represents a potential solution to some of our energy transition issues and its milestone have many spill-over effects on several scientific fields.

The advantages of fusion over fission are threefold: First, it doesn't produce high-level radioactive waste (high-activity/long life) - although there are still issues over the storage of shorter life radioactive waste (less than 100 years); Second, there's no risk of nuclear proliferation, since it doesn't use fissile material such as uranium or plutonium (which can be weaponised); Third, there's no risk of melting of the core: if there's a processing issue, the reaction just stops (in the case of nuclear fission, an accident can lead to such melting, creating a highly radioactive magma called corium).

Beryllium is used as armour for the plasma-facing first wall panels fitted inside the Tokamak

ITER focuses on establishing controlled nuclear fusion on a large scale: with 50 MW input, its proponents expect to produce 500 MW in output (as heat, which will then create steam to operate turbines).

Most partners contribute to the project by producing and sending elements to be assembled starting from this year, 2018. The first plasma is expected by 2025, with full power reached by 2035.

ITER is more than EU contributions to the project. It has required the developing components that had never been manufactured before for the biggest-ever fusion device. It offers an unprecedented opportunity to industry, SMEs and fusion laboratories to get involved and contribute to the greatest international collaboration in the field of energy and beyond.

BeST is proud to modestly participate in this international project, for a clean and safe energy in the future, by providing information concerning the best practices in the beryllium industry and the exposure limit values in the different regions of the world.

The BeST website keeps you informed with a 'Latest news' section, where readers can follow the latest news and features on beryllium.

The new section complements the wealth of information already on the site, on issues such as environment, health and safety.

Get the latest news on **BeST online**.

BeST can also be found on Facebook. 'Like' **the page** and be notified when there is news from our association. Photos of events organised by BeST can also be found on our Facebook page.