

On the 1st of October 2020 was launched REEScue project, under ERANET - ERAMIN 3 - REEScue: “Integrated process for the recovery of Rare Earth Elements and Scandium from Bauxite Residues” and it was successfully finalized on time. The project was financed by Program PN III National Research, Development and Innovation Plan 2015-2020 European and International Cooperation, through the Executive Unit for the Financing of Higher Education, Research and Innovation (UEFISCDI) from Romania, through the financing contract 182/2020.

Summary of the stages – degree of achievement of the estimated results

Completed stages of the Implementation Plan

No. crt.	Year	Stage The name of the activity Partner	Verifiable estimated results of the activity Activity category Partner activities	Stage completion date	The degree of achievement of the estimated results	Achievements of the results
1	2020	Stage 1 - Sampling and transmission for the analysis of Alum bauxite residue, centralization and monitoring of the results of analytical determinations, construction of the project website according to the WP8 work package.	The transmission of ALUM bauxite residue samples and the start of the construction of the project website according to the work package WP8.	31/12/2020	100%	<p>Achieved</p> <ul style="list-style-type: none"> ALUM bauxite residue samples were taken, homogenized, conditioned and sent for analysis to the University of Athens; The construction and development of the project website has begun: www.reescue.com.
2	2020	Activity 1.1 - Sampling and transmission for the analysis of Alum bauxite residue, centralization and monitoring of the results of analytical determinations, construction of the project website according to the work package WP8.	Industrial research in effective collaboration with the dissemination of results		100%	<p>Achieved</p> <ul style="list-style-type: none"> Bauxite residue samples from Greece, Turkey and Romania were sent and analyzed; The bauxite residues were characterized from a chemical, mineralogical and granulometric point of view for industrial research in collaboration with the entities participating in the project.

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3	2020	1.1.1 ALUM SA	Sampling and transmission for the analysis of Alum's bauxite residue, centralization and monitoring of the results of analytical determinations, construction of the project website according to the WPS work package.		100%	<p>Achieved</p> <ul style="list-style-type: none"> • ALUM bauxite residue samples were taken, homogenized, conditioned, transmitted, characterized from a chemical, mineralogical and granulometric point of view for industrial research. • The construction and development of the project website has begun: www.reescue.com.
4	2021	Stage 2 – Technical-economic analysis of the processes	Reporting the results of the technical-economic analysis and the life cycles of the processes	31/12/2021	100%	<p>Achieved</p> <p>The results of the technical-economic analysis and the life cycles of the processes were presented, reported and disseminated by publication on www.reescue.com within:</p> <ul style="list-style-type: none"> • Plenary Meeting No. 1 26.03.2021; • Plenary Meeting No. 2 of 26.10.2021; • Plenary Meeting No. 3 of 05.05.2022; • Plenary Meeting No. 4 of 18.11.2022.
5	2021	Activity 2.2 -Technical-economic analysis of the proposed recovery methods for the targeted critical materials from all three types of bauxite	Industrial research in effective collaboration or with the dissemination of results		100%	<p>Achieved</p> <p>In order to disseminate the results of the project, between 5-9.09.2021 NTUA participated, in Athens, in the International Conference on Raw Materials and the Circular Economy RawMat2021 with a paper accompanied by a presentation entitled "Preliminary characterization of 3 types of metallurgical bauxite residues"</p> <p>Circular Economy RawMat 2023 Conference, Athens, 29 Aug 2023.</p>

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6	2021	2.1.1. ALUM SA	Technical-economic analysis of the recovery methods proposed for the targeted critical materials from all three types of bauxite. Identification and evaluation of the impact of the individual activities of the 100% developed processes		100%	<p>Achieved</p> <p>ALUM participated in the presentation, reporting and implemented the dissemination by publication on www.reescue.com of the project results related to the technical-economic analysis and the life cycles of the processes within:</p> <ul style="list-style-type: none"> • Plenary Meeting No. 1 from 26.03.2021; • Plenary Meeting No. 2 of 26.10.2021; • Plenary Meeting No. 3 of 05.05.2022; • Plenary Meeting No. 4 of 18.11.2022.
7	2022	Stage 3 - Circular economy and analysis of life cycles of processes	The analysis of the fulfillment of the principles of the circular economy correlated with the analysis of the life cycles of the processes	31/12/2022	100%	<p>Achieved</p> <p>The fulfillment of the principles of the circular economy was analyzed and correlated with the analysis of the life cycles of the processes. The results were discussed and disseminated on www.reescue.com and within:</p> <ul style="list-style-type: none"> • Mid-Term Review Webinar of ERA-MIN 2 Call 2019 projects - TOPIC 3: Processing, Production and Remanufacturing from 8.06.2022; • Plenary Meeting No4 November 18th, 2022 In Conference “XV International Mineral Processing and Recycling Conference (IMPRC 2023) Belgrade, Serbia 17-19 May 2023” with one paper with title “Environmental assessment of Rare Earths recovery method from bauxite residues”, DOI: 10.5281/zenodo.7944401 https://www.researchgate.net/publication/370818679 and one poster.

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8	2022	Activity 3.1 - Analysis of the fulfillment of the principles of the circular economy correlated with the analysis of the life cycles of the processes	Industrial research in effective collaboration or with the dissemination of results		100%	<p style="text-align: center;">Achieved</p> <p>As part of the dissemination activities: the article presented between 5-9.09.2021 at the International Conference on Raw Materials and the Circular Economy</p> <ul style="list-style-type: none"> • RawMat2021, was published in scientific journal "Materials Proceedings" (https://www.mdpi.com/2673-4605/5/1/66); • was published one scientific paper published at Conference Paper · May 2023: “Environmental assessment of Rare Earths recovery method from bauxite residues” DOI: 10.5281/zenodo.7944401 https://www.researchgate.net/publication/370818679.
9	2022	3.1.1 ALUM SA	The analysis of the fulfillment of the principles of the circular economy correlated with the analysis of the life cycles of the processes		100%	<p style="text-align: center;">Achieved</p> <p>ALUM actively participated in analyzing the fulfillment of the principles of the circular economy correlated with the analysis of the life cycles of the processes and the results were disseminated by publishing the presentations on www.reescue.com :</p> <ul style="list-style-type: none"> • Plenary Meeting No4 November 18th, 2022; • 4th Press Release – Final REEScUE Project 2023; • Mid-Term Review Webinar of ERA-MIN 2 Call 2019 projects - TOPIC 3: Processing, Production and Remanufacturing from 8.06.2022.

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10	2023	<p>Stage 4 – Preparation of submission to publish articles in a scientific journal. Preparation and support of presentations in international conferences.</p>	<p>3 articles in scientific journals 3 presentations in international conferences</p>	31/10/2023	100%	<p style="text-align: center;">Achieved</p> <p>3 presentations in international conferences:</p> <ul style="list-style-type: none"> • RAWMAT 2021 -Presentation with title “Preliminary characterization of 3 Metallurgical Bauxite Residue samples • RAWMAT 2023 -Presentation with title “REEScue-An Integrated process for the recovery of Rare Earth Elements and Scandium from Bauxite Residues” • XV International Mineral Processing and Recycling Conference (IMPRC 2023) Belgrade, Serbia 17-19 May 2023, Poster with title “Hydrothermal Treatment of Bauxite Residue for Iron Recovery Enhancement by Magnetic Separation” <p>4 scientific articles:</p> <ul style="list-style-type: none"> • Article with title “Preliminary characterization of 3 Metallurgical Bauxite Residue samples” published in “Materials Proceedings” • Article (abstract) with title “REEScue-An Integrated process for the recovery of Rare Earth Elements and Scandium from Bauxite Residues” in Book of Abstracts – RawMat2023 (ntua.gr) • Article (abstract) with title “Leaching of Bauxite Residues from Turkish, Greek and Romanian Plants Using Concentrated Sulphuric and Hydrochloric Acids for Potential Application in an Industrial Recovery Plant “in Book of Abstracts – RawMat2023 (ntua.gr) • Article (abstract) with title “Environmental assessment of Rare Earths recovery method from bauxite residues” published in proceedings of the conference, page 126-133

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11	2023	Activity 4.1 - Effective industrial technical support for publishing articles and making scientific presentations in international conferences	A2(A) - Industrial research in effective collaboration or with dissemination of results		100%	<p style="text-align: center;">Achieved</p> <p>Effective technical support for publishing 4 scientific articles and disseminating the project results in international conferences. The project results have been disseminated by publishing it www.reescue.com:</p> <ul style="list-style-type: none"> • section: Project results - REEScue - CONSORTIUM PARTNERS RESULTS • section: News - REEScue.
12	2023	4.1.1 ALUM SA	Effective industrial technical support for publishing articles and making scientific presentations in international conferences		100%	<p style="text-align: center;">Achieved</p> <p>ALUM provided effective technical support for publishing articles and was represented along international partners from consortium in international conferences. The project results have been disseminated by publishing it www.reescue.com:</p> <ul style="list-style-type: none"> • section: Project results - REEScue - ALUM'S PROJECT RESULTS; • section: News - REEScue. <p>The website will be maintained alive for another 3 years as foreseen in financing contract no 182/2020, by Program PN III National Research, Development and Innovation Plan 2015-2020 European and International Cooperation, through the Executive Unit for the Financing of Higher Education, Research and Innovation (UEFISCDI) from Romania</p>