Appendix no. 1 to RPK

THEMATICAL SCOPE OF COMPETITION NO. 3/1.2/2017/POIR

THEMATIC AREA I. Nor-ferrous metals sector waste

1. Development of metal recycling technologies, including critical metals\(^1\), from scrap of used electrical and electronic equipment (UEEE) in the direction of:
   a. Recycling of copper and other selected metals from waste of printed circuit boards, derived from UEEE as well as from cable and wire waste
   b. Recycling of rare earth metals from scrap electrical and electronic equipment containing neodymium magnets
   c. Recycling of tantalum from electronic device capacitors,
   d. Recovery of indium and tin from scrap of monitors.
2. Development of recovery technologies of precious metals and rare earth metals from selected catalysts.
3. Development of recycling technology of high-melting metals.
4. Optimization and development of processing technologies of lithium, lithium-ion and nickel-metal hydride batteries.
5. Development of obtaining technologies of high-quality commercial products from mechanical processing of waste Zn-Mn and alkaline batteries.
6. Recovery of tellurium and other precious metals from scrap photovoltaic panels.
7. Improving existing production technologies and development of new lead alloys – products of lead-acid batteries recycling.
9. Innovative processing technology of waste products in the form of chips (envelope) for use as a full-value feedstock for the production of semi-finished products.
11. Modern, economic and ecological technologies zinc alloys production and hot-dip steel products galvanising.
12. Development of technologies for obtaining alloys from mechanical processing of car wrecks.
13. Development of recycling technologies for tungsten and cobalt as well as other accompanying high-melting metals from carbide waste sintered in the form of useful compounds.
15. Development of valorisation technology of metallurgical slag waste, e.g. in the

\(^1\) Metals from the list of critical raw materials in line with the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions of 26 May 2014 on the review of the list of critical raw materials for the EU and the implementation of the RMI.
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INNOVATIVE RECYCLING

Measure 1.2: R&D Sectoral Programmes

direction of:
- transformation of polymetallic waste slag from the smelting of lead-bearing materials of copper metallurgy into useful products: crude lead, copper matte, Zn-Pb dusts and silicate mineral resource,
- waste-free process of disposing of waste slag from battery scrap processing
- fumigation of zinc and lead from slag from the ISP process with simultaneous phase separation of Fe-Cu-S sulphide
- homogenisation of waste slag from Waelz processing of steelmaking dusts and after-lye sludge, including valuable metal recovery- iron, zinc, lead and silver
- effective management of dross from recycled aluminium alloys.

16. Development of hydrometallurgical recovery technology of selected metals, including Al, Zn, Cu, from fly ashes and slag from power plants and waste incineration plants.

17. Recovery of selected high-melting metals in the form of useful compounds of high purity from waste generated when processing superalloy scrap.

18. Development of technologies for a comprehensive recovery of metals from mining waste, e.g. in the direction of:
   - zinc and lead recovery
   - copper recovery

19. Development of lithium recovery technologies.

20. Development of an integrated analysis technology of sodium sulphate (VI) and sodium chloride solutions using membrane techniques which leads to obtaining concentrated solutions of H2SO4 or HCl and NaOH.


THEMATIC AREA II. Coal mining waste

1. Development of recovery technologies and minig waste management to build roads, levees and produce concrete.

2. Development of an innovative method for the recovery of aggregate mining waste using dry separation method.

3. Development of management technologies of waste coal slurry, in the direction of:
   - area surface hardening
   - application in underground mining techniques
   - application to organise and protect against water and wind erosion
   - elimination of fire hazards at dumps gangue,
   - application in biological reclamation,
   - production of mixtures of stabilised ash-aggregate road and hydraulic binders.

THEMATIC AREA III. Ceramics, glass, and building materials waste

1. Innovative solutions and technologies in the field of ceramics, glass and building materials, guaranteeing a reduced non-metallic mineral resources consumption.
2. Development of technologies to apply waste from the non-metallic mineral materials processing sector in the manufacturing process of ceramics, glass and building materials for reduced environmental hazard.

3. Recycling of ceramic waste in refractories technology.

4. Recycling of ceramic waste in refractories technology.

5. Use of ceramic industry waste for as a ceramic catalyst

6. Safe and efficient recycling technologies of scrap and refractory materials.

7. New technology of using scrap refractory as a slag-creating additive in metallurgical processes.


10. Application of new glass recycling methods in the form of cullet.

11. Development of cullet control method for heavy metal content.

12. Recycling of new generation construction materials

13. Comprehensive development of recycling waste from building demolition.

14. Development of production technology of silica sol based on amorphous silica waste including the use of by-products in the production of synthetic zeolites and geopolymer mixtures

15. Development of aggregate recovery technology from construction waste, including rail vehicle sleepers.


17. Production technology of multi-material mixtures from construction waste.

18. Development of coupling materials separation technology, including plastic plugs and metal connectors.

19. Development of technology of obtaining aggregate from adhesive and plaster coatings.


THEMATIC AREA IV. Wood waste

1. Recovery of post-consumer wood and post-consumer wood materials, except for energy recovery.


3. Innovative recycling, including organic, of small-sized wood waste (chips, dusts, fibres,) arising from production processes and recovered from post-consumer wood.

4. Development of innovative technology for the production of filter material from waste wood raw material for the purpose of purifying air containing odorants.

5. Production system of interior finishing of recovered wood.

6. Production technology of production of multi-component packaging products based on lignocellulosic particles.

7. Production technology as well as technical and functional parameters of batches to building bulkheads prefabricated of demolition wood.

8. Innovative material recycling technologies of waste wood intended for sustainable buildings.
9. The use of recovered wood and/or waste plastics and/or wood waste for the production of wood-based panels.