

Circularity Labs Austria

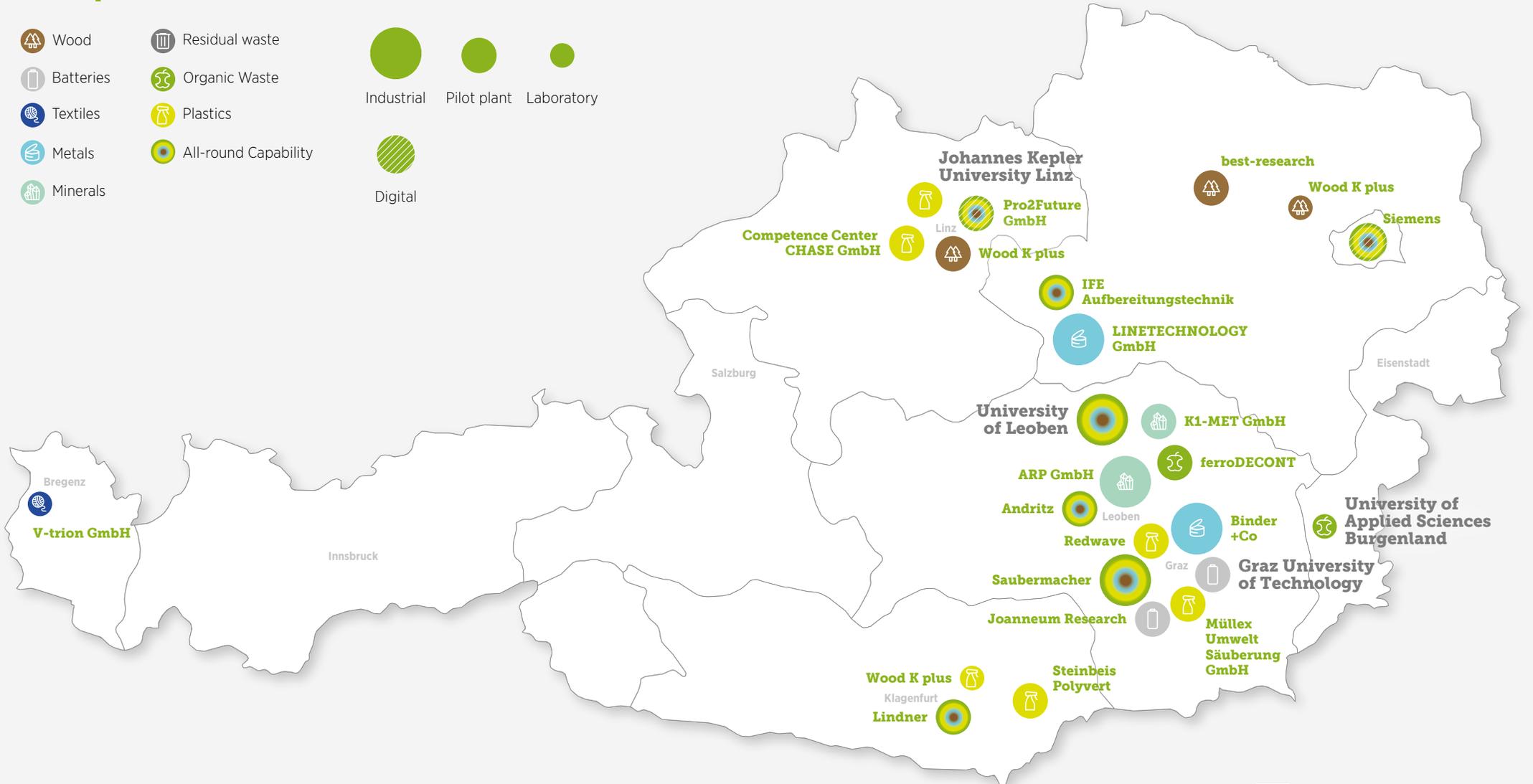
Circular Economy R&D Project Infrastructure, Survey 2024

Area of Specialisation

- Wood
- Residual waste
- Batteries
- Organic Waste
- Textiles
- Plastics
- Metals
- All-round Capability
- Minerals

Scale

- Industrial
- Pilot plant
- Laboratory
- Digital



Facilities with a minimum investment volume of € 250,000 and the possibility for cooperative projects are considered.

UNIVERSITY OF LEOBEN DIGITAL Waste Research LAB

Specialized Process

Sorting

Brief Description

The DIGITAL Waste Research LAB (DWRL) is currently under construction at the AVAW Institute, for classification and on-line and real-time characterisation of bulk waste materials based on innovative sensors and object recognition. The conveyor technology and sorting unit structure, including sensors, has already been completed.

Contact

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Resources

Experimental sensor-based sorting setup

Specialized Process

Sorting

Brief Description

The Chair of Waste Processing Technology and Waste Management (AVAW) has a compact sorting station available for university and industrial research projects, which has been designed as a two-way machine. Grain sizes ranging from 5 to 300 mm can be processed. The material feed is introduced via a vibrating chute followed by a glass chute.

Contact

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Resources

RecoDust pilot plant

Specialized Process

High-temperature processes

Brief Description

Plant for high temperature treatment of metallic dusts in steelworks for recovery of iron and zinc

Contact

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Dipl.-Ing. Wolfgang Reiter
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Resources

Electrocatalytic Surfaces for Renewable Energy

Specialized Process

Thermal and chemical processing, production of materials and raw materials

Brief Description

Plant for high temperature treatment of metallic dusts in steelworks for recovery of iron and zinc

Contact

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Resource

GRAZ UNIVERSITY OF TECHNOLOGY (TU GRAZ) Battery Safety Center Graz

Specialized Process

Safety

Brief Description

Beyond innovation in testing for battery safety, the research laboratory of the Institute for Vehicle Safety at TU Graz is involved in optimisation and extension of the safe life of batteries, including options for reuse in 2nd-life applications.

Contact

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Resource

Eddy Current Separator for particles < 1 mm

Specialized Process

Sorting

Brief Description

Presented here is a novel design of an eddy current separator for extracting non-ferrous metal particles (e.g. aluminium, copper, silver, gold) from non-metallic materials. The plant has been specifically optimised for the separation of particles under 1 mm, well below the lower threshold of conventional conveyor belt technologies.

Contact

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Resource

Environmental mineralogy

Specialized Process

Mineralogical and chemical material characterization. Development of building materials and building material components.

Brief Description

In addition to active education of students in a range of disciplines (including Earth Sciences, Environmental Systems Sciences, and Civil Engineering), the Institute of Applied Geosciences is involved in a range of research topics from applied mineralogy and hydro geochemistry to materials science and civil and geotechnical engineering. The main activities related to the circular economy focus on the characterisation of mineral residues and secondary raw materials as well as further utilisation of building materials in an environmentally friendly and resource-saving manner.

Contact

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Resources

Laboratory for Sustainable Building Materials

Specialized Process

Pre-treatment, mechanical processing, production of materials and raw materials

Brief Description

Institute of Technology and Testing of Construction Materials (IMBT-TVFA) offers laboratory facilities for the research and testing of primary, secondary and residual waste material properties, with respect to the recycling and application as building materials.

Contact

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Resources

ANDRITZ

Specialized Process

Manual and mechanical processing

Brief Description

With facilities extending over 3,600 m², the ANDRITZ Recycling Technology Center in St. Michael, Austria, allows recycling tests to be conducted on a wide variety of raw materials, using state-of-the-art, industrial scale, recycling machinery. The new recycling test centre is equipped with advanced shredding technology from the recently introduced ADuro product line and enables tests under real plant conditions.

Contact

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Resources

ARP Aufbereitung, Recycling und Prüftechnik GmbH

Specialized Process

Mechanical processing, sorting, classification, metallurgical processing, hydro-metallurgy

Brief Description

ARP Aufbereitung, Recycling und Prüftechnik Ges.m.b.H is a private and independent Austrian research and testing institute for raw materials, process and environmental technology. Here you will receive professional support to develop and implement treatment steps in the processing of waste, the recovery of valuable materials and the inertisation of residual waste, as well as in testing and inspection tasks related to new and recycled building materials, waste streams, fuels and exhaust gas analysis.

Contact

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Resources

BINDER + CO

Specialized Process

Sorting, classification

Brief Description

The pilot plant has an extensive set of test equipment. Tests can be conducted from the kilogram level up to the low tonne range, dependent on the specific assignment. The centre extends over some 1,500 m². Testing on the equipment can be used for prototype development and feasibility studies, as well as for initial data for process engineering design and dimensioning.

Contact

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Resources

FERRODECONT

Specialized Process

Pre-treatment, thermal and chemical processing

Brief Description

ferroDECONT offers an advanced R&D pilot plant that facilitates innovative solutions in wastewater treatment. Soluble heavy metals can be converted into solid recyclable materials using an effective fluidized bed process. Organic pollutant compounds can be broken down through oxidation. The test facilities are available for trials or they can be adapted for small scale testing, depending on customer requirements. The team of experts provides comprehensive know-how and support to researchers, combined with access to a modern pilot plant and laboratory infrastructure for collaborative projects.

Contact

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Resources

JOANNEUM RESEARCH

Specialized Process

Sorting

Brief Description

JOANNEUM RESEARCH Institute LIFE is able to assist you in the development of your process and product by assessing recyclability over the entire life cycle.

Contact

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Resource



K1-MET GMBH

Specialized Process

Metal production and recycling from iron ores and residues of iron and steel metallurgy

Brief Description

The pilot plant is located at voestalpine Stahl Donawitz GmbH and is involved in the development and application of CO₂-free production of crude steel and the recycling of residual materials from iron and steel production. This is based on hydrogen plasma (hydrogen plasma smelting reduction, or HPSR). The hydrogen acts in two ways, firstly in reduction of metal oxides used as feedstock, and secondly in the use of the energy content in the plasma phase to melt the metal produced from reduction.

Contact

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Resources

MÜLLEX-UMWELT-SÄUBERUNG-GMBH

Specialized Process

Pre-treatment, sorting, classification, manual and mechanical processing

Brief Description

Two separate mechanical sorting and processing systems are available. In our splitting plant, bulky, residual/household and commercial waste is sorted and processed into medium-calorific substitute fuel. In our RDF plant, the residual materials from "yellow bag" waste and bin collections are processed into high-calorific substitute fuel.

Contact

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Resource



REDWAVE

Specialized Process

Sorting

Brief Description

The new REDWAVE test centre was completed in 2020, for the purpose of continuous improvement and further development, primarily for our customers, but also for advances in R&D. Our test centre is available to you at any time for conducting sorting tests.

Contact

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Resources

SAUBERMACHER

Specialized Process

Crushing, sorting

Brief Description

The Puchstrasse location of Saubermacher in Graz operates a unique research facility over a total area of 500 m². Referred to as a "Technikum" (pilot plant), the facility enables the investigation into larger material flows or heterogeneous waste on a representative sample basis. This enables the development and testing of recycling solutions in collaboration with universities and research partners from industry and commerce. The Technikum is also available to external research bodies and universities for conducting tests.

Contact

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Resources

Lower Austria

BEST-RESEARCH

Specialized Process

Thermal and chemical processing, production of materials and raw materials, high-temperature processes

Brief Description

The centrepiece of the GreenCarbon Lab consists of two pyrolysis units with different scaling, which facilitate investigation into basic biorefinery concepts for the production of sustainable carbon products. The plant on site consists of: a) a laboratory pyrolysis plant and rotary kiln, with lab testing, in the kg range, and b) a pilot pyrolysis plant, twin-screw system, for pilot output of green carbon products of 100kg/h up to the tonne scale.

Contact

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Resources

KOMPETENZZENTRUM HOLZ GMBH (WOOD K PLUS)

Specialized Process

Value creation and processing chain for solid wood and wood composite materials

Brief Description

Wood K plus conducts research at the intersection of business and science to enable resource-efficient practices within a circular bioeconomy. The core competencies lie in materials research and process technology for wood and other renewable raw materials. Utilizing by-products as well as recycling and reuse are central themes.

Contact

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Resources

IFE

Specialized Process

Sorting, classification, mechanical processing

Brief Description

Vibration screening machines, conveyors and magnetic separators, including eddy current separators, are available for various potential applied research and testing tasks arising from the mechanical processing of primary and secondary raw materials. The pilot plant has an established reputation, conducting around 200 tests per year for customers and through its research collaboration with the University of Leoben and other universities.

Contact

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Resources

LINETECHNOLOGY GMBH

Specialized Process

Sorting, classification; manual and mechanical processing

Brief Description

The modular processing system for industrial waste. Modular processing units, based on containers, are arranged to match the required waste treatment process. Access is provided to an extensive range of products, covering almost all established steps in the processing of dry mechanical-physical waste, all matched to each other and available from a single source.

Contact

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Resources

Upper Austria

JOHANNES KEPLER UNIVERSITY LINZ (JKU)

Specialized Process

Recycling, digitalization, production of thermoplastic lightweight components, injection molding, component testing, material analysis

Brief Description

The LIT Factory is a state-of-the-art R&D facility which specialises in intelligent process engineering in plastics technology and Industry 4.0. It offers a platform for research innovation in product and production, and works closely with industrial companies and SMEs to promote technological advances within the scope of digitalisation and intelligent production. A wide range of collaboration options are open to companies at the LIT Factory; ranging from tours and workshops to small projects, contract research and funded research, as well as training and educational opportunities.

Contact

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Resources



COMPETENCE CENTER CHASE GMBH

Specialized Process

Pre-treatment, mechanical processing, thermal and chemical processing

Brief Description

The CHASE Research Center for Chemical Systems Engineering has locations in Linz and Vienna and helps companies in the process industry sector to save on resources and costs and improve the efficiency of their production. It assists companies in meeting statutory requirements and achieving greater sustainability through digitalisation.

Contact

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Resource



KOMPETENZZENTRUM HOLZ GMBH (WOOD K PLUS)

Specialized Process

Formulation and process development of bio-based thermoplastics and composites; material development for bio-based carbons (fibers, electrodes, ceramics); biotechnological technical center for renewable raw materials

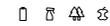
Brief Description

See Wood K plus / Competence Center for Wood GmbH in Lower Austria.

Contact

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Resources



PRO2FUTURE GMBH

Specialized Process

Sorting, pre-treatment, manual and mechanical processing

Brief Description

This novel approach not only requires expertise in existing research fields, such as man-machine interaction, IOT, pervasive computing, automation, etc., which are covered by the Pro2Future consortium, but can only be mastered through R&D into a new dimension of ICT, cognitive systems.

Contact

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Resources



Carinthia

KOMPETENZZENTRUM HOLZ GMBH (WOOD K PLUS)

Specialized Process

Production, development, and recycling of composites; data-based material development through sensor use; material analysis

Brief Description

See Wood K plus / Competence Center for Wood GmbH in Lower Austria.

Contact

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Resources



LINDNER

Specialized Process

Shredding

Brief Description

The LINDNER Technology Center: a showroom for demonstrator equipment, shredding tests, material analysis and live practical demonstrations for conducting trials on customer materials. Testing of new developments is also conducted, as well as training and further education.

Contact

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Resources



STEINBEIS POLYVERT

Specialized Process

All-round Capability

Brief Description

Application of advanced extrusion and injection moulding systems: Twin-screw/blown film extruders, along with a comprehensive range of options for testing the mechanical and thermal properties of plastics, including advanced technologies such as NIR and GCMS equipment for precise examination of material composition.

Contact

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Resources



Burgenland & Vienna

UNIVERSITY OF APPLIED SCIENCES BURGENLAND

Specialized Process

Thermal and chemical processing

Brief Description

A pilot plant is located at the Pinkafeld site for proof of process in the thermo-chemical pre-treatment phases of material and energy recovery from various waste streams. A specific focus is on the low-calorific fraction from MBT.

Contact

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Resources



SIEMENS

Specialized Process

Sorting, classification, mechanical processing

Brief Description

The DigiLab in Vienna facilitates the transfer of applications to the real-life world of manufacturing industry, finding solutions to make production more efficient. Key areas of focus and application include waste management and recycling.

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Resources



Vorarlberg

V-TRION GMBH

Specialized Process

Manual and mechanical processing, thermal and chemical processing, material analysis

Brief Description

V-trion GmbH has a full range of chemical and analytical textile laboratory facilities for textile waste. V-trion also has available a large range of textile manufacturing plant and plastic extruder technologies in its pilot plant, such as melt blown spinning technologies for recycled materials.

Contact

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Resource



Further universities and universities of applied sciences with research in circular economy and recycling (investment volume < 250,000€)

University of Applied Sciences

Joanneum Graz



Vienna University of Technology (TU Vienna)



University of Natural Resources and Life Sciences, Vienna (BOKU)



University of Innsbruck



Legend for Recyclable Materials

Electronics	Organic Waste
Batteries	Products & Packaging
Glass & Ceramics	Industrial Wastewater
Metals	Textiles
Minerals	Residual waste
Plastics	
Wood	