D1.1. Data Management Plan

Circular Fuels

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Deliverable Information Sheet

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Circular Fuels

List of Acronyms

ALLEA	All European Academies
BIC	Bio-based Industry Consortium
CC by	Creative Commons
CC0	Creative Commons zero
CERN	Conseil Européen pour la Recherche Nucléaire
CF	Circular Fuels
CFD	Computational Fluid Dynamics
CNRS	Center National de la Recherche Scientifique
DNI	Direct Normal Irradiance
DOI	Digital Object Identifier
DPO	Data Protection Officer
DSC	Differential Scanning Calorimeter
EDS	Energy-dispersive X-ray spectroscopy
FAIR	Findable, Accessible, Interoperable, Re-Usable
FTIR	Fourier Transform Infrared Spectroscopy
GDPR	General Data Protection Regulation
HTTP	HyperText Transfer Protocol
IT	Information Technology
IPR	Intellectual Property Rights
LCA	Life Cycle Analysis
MIT	Massachusetts Institute of Technology

MS	Microsoft
NAS	Network Attached Storage server
OAI-PMH	Open Archives Initiative-Protocol for Metadata Harvesting
PEM	Proton Exchange Membrane
PI	Principal Investigator
SAF	Sustainable Aviation Fuel
SEM	Scanning Electron Microscopy
SI	System of Units
TB	Terabyte
TEA	Techno-Economic Analysis
VTT	Valtion Teknillinen Tutkimuskeskus
WP	Work package

Keywords list

- Data storage
- Metadata
- Data sharing
- Data protection

Disclaimer

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Executive summary

The Data Management Plan (DMP) covers what type of data will be collected, how it will be stored, who gets access to it, and how it will be preserved for the long term. It is meant to function as a roadmap that ensures data is handled responsibly and ethically throughout a research project and beyond.

The Circular Fuels (CF) project aims to produce sustainable aviation fuel by instigating solar energy into thermal conversion (pyrolysis) to produce bio-oil from forest and agricultural wastes. Later, bio-oil will be stabilized and upgraded to bio-crude by the slurry hydrotreatment process using green hydrogen produced from the PEM electrolyzer. The CF project is distributed in seven work packages (WPs). WP1 is project management; WP2 involves system design and optimization; WP3 consists of the integration of solar power and heat; WP4 covers primary conversion and upgrading technologies; WP5 investigates fuel products, end-use performance, and compatibility; WP6 performs scale-up perspectives, exploitation, and policy recommendations; and WP7 is dissemination and communication. In general, the CF project will generate simulation and experimental data. WP2, WP3, WP5, and WP6 will contribute to simulation data, while WP3, WP4, WP5, and WP6 will contribute experimental data.

All data will follow the FAIR data policy, so research data will be easy to find, access, and it will be interoperable and reusable, aiming for increased transparency and collaboration in scientific research. All suitable data for public sharing will be stored and shared on Zenodo, which is an open-access data repository. A Digital Object Identifier (DOI) will be created for each shared dataset. The data will be available to the global research community and other stakeholders.

During the project, all consortium partners will be responsible for the secure storage of the research data they process. Each partner commits to using storage solutions that provide adequate possibilities for backup and protection against unauthorized access. In the CF project, there will be no human or animal subject participation, so there will be no personal data or animal cruelty activity involved; therefore, there was no need to apply for an ethical pre-review with institutional or national ethics boards. In the administrative tasks of dissemination and communication (WP7), the GDPR will be applied if the performance of the tasks requires the processing of personal data.

1. Data Summary

This Data Summary is a compilation of the project data in **Circular Fuels project (CF)** and it explains who is handling the data during the implementation of the project. The items that are addressed in this compilation answer the following questions: What data sets will be exploited, or What new measurements will be conducted, or What work packages (WP)/tasks/objectives will the new data serve, or Where will the experiments be conducted? Each WP is presented separately to clarify the purpose of the data collection specifically within the scope of the specific activities in the respective WP. This summary considers both the use of existing data and new measurements generating new data. In some instances, it is not yet clear at this stage of the project whether all the data deemed useful from the initial perspective will be relevant or will need to be produced. The following is therefore an estimate of what existing data will be incorporated to generate new data.

The CF project data will generally consist of Aspen Plus simulation data and model, Computational fluid dynamics (CFD) simulation data and model, solar pyrolysis experimental data, solar electrolyzer simulation data, Life Cycle Analysis (LCA), Techno-Economic Analysis (TEA) feedstock mapping model, biomass physiochemical characterization data, bio-oil characterization data, bio-crude oil characterization data, distillation data, SAF material compatibility data, SAF combustion test data. Simulation data will be produced through computer simulations using e.g., CFD, Aspen plus, and open LCA.

1.1. WP 2

WP2 system design and optimization will exploit the Aspen plus simulation data and heat integration of overall process optimization. Therefore, WP2 will not use any existing data. WP2 will addresses Objective 1 of the project, to optimize the technical performance of the **Circular Fuels**' fully integrated system for solar fuel production. Which includes (1) simulation of the state-of-the-art pilot energy system and investigation of energy, exergy, efficiencies, and environmental impact; (2) the optimization of the fully integrated system from the technological viewpoint. The aim is to develop, design, and validate simulation models in Aspen Plus® based on the pyrolysis reactors at CNRS and VTT and study various inputs parameters such as the effect of temperature, particle size, residence time, feed rate, and biomass type. Fast pyrolysis together with upgrading by two hydrotreatment steps will be simulated with a yield-based model in AspenPlus© using experimental results. Solar heat & power, H_2 requirement, and storage needs for night-time mode operation will be investigated. Performance optimization of the whole process integration by exergy analysis will be performed and finally the environmental impact of the technical system will be evaluated.

Primary project work will be conducted at partner organizations, such as system design and optimization simulation, and CFD simulation work will be performed at Aalto University, Finland. Data obtained from the AspenPlus© simulation and system leave modelling during WP2 will be considered as new data. Data will be shared in the form of open access publications with associated DOI and will thus be available to a wide audience, from research centres to policymakers and the general public. All data will be Findable, Accessible, Interoperable, Reusable (FAIR). The simulation model can be reused for any other pyrolysis process with modifications, while simulation results could be used to compare with experimental data.

1.2. WP3

In **WP3, integration of solar power and heat**, a comprehensive literature survey and previous CFD model data will be used and adapted to pyrolysis. Also, 3D drawings of existing solar experiments can also be of interest and may be considered. WP3 will explore CFD simulation data of solar driven pyrolizer model. This includes experimental data of pyrolysis solar reactors using waste wood and agricultural wastes. A CFD model is planned for the solar pyrolysis reactor, previous existing data will help to develop a model dedicated to **Circular Fuels** application. Experience in solar reactors, gathered in 3D drawings, will also be useful for the new reactor conception.

New measurements will be conducted on a new solar pyrolysis reactor to be built in the framework of the project. Data such as temperatures, species concentrations, flowrates, DNI (Direct Normal Irradiance), pressures will be recorded for further analysis (key performance indicators such as conversion, mass balance, energy efficiency etc.). A time step of about one second is expected. The data format will be .txt or csv. SI units will be used, and all the files will be time-stamped. Lab-scale solar pyrolysis experimental work will be conducted at PROMES Laboratory, CNRS, France, while pilot-scale pyrolysis work, catalysis synthesis, and hydrotreatment upgrading work will be performed at VTT Otaniemi and Bioruukki, Finland. All experimental data will be produced as new data. In general, RTO's and companies are active in the renewable fuels, chemicals, and lignocellulosic residues segments. The data could be used for further investigation of the process in future projects (either academic or industrial).

1.3. WP 4

WP4, primary conversion and upgrading technologies, will use existing in-house data related to fast pyrolysis, catalyst synthesis, and characterization, as well as hydrotreatment experiments. WP4 data will be obtained from pilot plant pyrolysis and catalytic hydrotreatment reactors. Analytical data of bio-oil and bio-crude oil will include their characterization performed using special tools and collected from special software packages of relevant analytical instruments.

In WP4 the purpose of using existing data is to design and develop next generation catalysts, processes and workflows related to catalyst performance, pyrolysis and bio-oil upgrading. In WP4 newly prepared catalysts will be developed, characterized, and assessed for their respective catalytic bio-oil upgrading performance. The quality of bio-oils produced via pyrolysis and slurry upgrading will be analytically assessed and the operating characteristics of process equipment (reactors, separators, etc.) will be determined and recorded. PEM electrolyzer simulation of green hydrogen production for hydrotreatment processes will be performed at Lund, Sweden. All simulation and experimental data will be produced as new data.

1.4. WP 5

In **WP5, fuel product, end-use performance, and compatibility**, no existing data will be used. But all process parameters for the hydrocracking pilot plant and procedures for the pilot plant will be adopted from existing JET A1 fuel-producing technology. In WP5 analysis of SAF and its side streams, end use performance of SAF, and SAF compatibility test with jet engine materials will be carried out. WP5 will therefore assess the whole process of upgrading bio-oil to SAF and its compatibility with existing infrastructure. In WP5 the new data will be sourced in a non-digital form (samples) and digital form (research results).

Non-digital data will be obtained as a result of experiments in the form of samples (e.g., seals, and gaskets before and after ageing). The samples will be appropriately classified, described, and stored in a designated part of the laboratory. The digital data will be organized in a manner typical of the software of the measuring apparatus. Digital data will be obtained as a result of the conducted analyses (including FTIR, DSC, TGA, SEM, EDS, and mechanical tests), and will be collected mainly in the form of raw data (in a format specific for a given apparatus) and in the form of tabular data (e.g. .xls, .doc,) and/or photos (e.g. .tif, .jpeg, .bmp).

Mostly, measurements according to the European Standards will be used, but there is the possibility to use BOSMAL's own analytical methods. SAF combustible tests at various small and large jet engines will be performed at Lund, Sweden. Bio-crude oil distillation and fractionation will be conducted at the Research and Development Centre in Płock, Poland. The material compatibility test of SAF will be performed at the BOSMAL headquarters at the Materials Testing Department in Poland. All simulation and experimental data will be served as new data.

The tests conducted for the compatibility of SAF with materials commonly used in the fuel supply system will provide an answer to the question of whether the obtained fuels will have potential applications. The test results will provide information on the influence of SAF on the physicochemical properties and structure of materials used in aviation. The obtained results will be of particular importance for fuel producers, mainly in the context of the composition of these fuels.

The confirmation of the compatibility of the new sustainable aviation fuels and the materials used in the fuel system is a practical aspect of the research. The obtained results are of particular importance in the context of broadly understood aviation safety. Lack of compatibility may result in a change in the physicochemical properties of the materials used, i.e., swelling, dimension instability, or deterioration of mechanical properties, which has a real impact on safety. The information received during the implementation of the task will allow, first of all, to determine the possibility of using new SAF, which will be important for fuel producers. On the other hand, finding answers to the questions related to the influence of the new SAF on the materials used in the fuel supply system will set the direction for further research. Understanding the relationship between fuel components and structural changes in the tested materials and changes in physicochemical properties is also of most importance from a scientific point of view.

1.5. WP6

In **WP6 scale-up perspectives, exploitation, and policy recommendations**, Open data from previous projects will be used. Paid subscriptions and licensed software, databases, and internet sites will also be used. Subscriptions and licenses will be partly financed by the Circular Fuels project. In WP6 LCA will be exploited, and a technoeconomic assessment as well as possible scalability potential and feedstock mapping will be conducted. WP6 aims to disseminate project results with environmental, economic, and policy relevance. The intention is to reach biomass value chain stakeholders in Europe (e.g., refineries, local and EU funding bodies) and thus advancing the know-how of prospective LCA and economic assessment for future research.

In WP6 no measurements will be performed but the WP will develop computational simulations. Computational simulations of LCA, the scalability potential of SAF, and its side steams will be performed at TU Wien, Austria. LCA results could be useful for local oil refineries in the EU and the Bio-based Industry Consortium (BIC) of which TU Wien is an associate member. The results could be interesting for the industrial scale of developing the SAF process. We are collaborating with communities of

energy system modelling and integrated assessment modelling that may potentially show interest in the generated data to be integrated into their databases.

1.6. WP7

In WP7, dissemination and communication, to make the project highly visible and raise awareness about the action and its wider objectives, data from project partners, project objectives, and timelines will be used. WP7 will widely disseminate project outcomes and make it visible for the public audience and all relevant stakeholders. WP7 will ensure the dissemination and communication of our interdisciplinary contributions over the project's full duration. In WP7 contents such as interview, project video, and digital visibility of project at social media will be created. In general, stakeholders are identified such as research centers, universities, local and EU policymakers, the media, and the general public.

2. Fair Data

This section addresses how the FAIR principles (Findable, Accessible, Interoperable, Re-usable data) are relevant for the Circular Fuels project implementation.

2.1. Making Data Findable, Including Provisions for Metadata

All data suitable for public sharing will be stored and shared on Zenodo which is an open access data repository. Data will be available to the global research community and other stakeholders. In Zenodo, a landing page with descriptive metadata (resource type, creators, title, date of publication, description, license) and a Digital Object Identifier (DOI) will be created for each shared dataset. Data-level metadata, including experiment details, equipment used, and any specific variables, will be recorded for each set of experimental data. Each shared data entity will be provided with potential key words to enhance findability and possible reuse of the data. To further increase findability, published datasets will be interlinked with the related scientific publications in the Data Availability Statement or similar section of the publications, if the DOI link to the dataset is already available at the time of publication. In Zenodo, it is possible to add links to related publications or other research outputs to the dataset metadata. The descriptive metadata in Zenodo is available in JSON format and can be exported in several other standard formats such as Dublin Core and DataCite Metadata Schema. All metadata in Zenodo can be harvested and exported via OAI-PMH (Open Archives Initiative Protocol for Metadata Harvesting).

2.2. Making Data Accessible

Research data suitable for public sharing, mostly experimental and simulation data generated in the project, will be stored in a trusted data repository such as Zenodo. It will be available in the repository under a non-restrictive open access license (such as the CC-BY license). However, the protection of IPR, confidentiality obligations and legitimate interests of the owner(s) of the results will be considered before datasets are made publicly accessible. The consortium partners will discuss whether restricted access can be provided to selected stakeholders via the process of access approval to restricted files in Zenodo, or whether the data should not be publicly shared at all. It is possible to store datasets in Zenodo under closed access, which means they are not accessible to Zenodo users; however, the files are stored unencrypted and may be accessed by Zenodo operational staff under specific conditions (see https://about.zenodo.org/infrastructure/). For this reason, confidential data including trade secrets or requiring IPR protection should not be submitted to Zenodo even with closed access.

Data acquired for reuse in the project will be used and managed based on the agreement with the rights owner, for example when licenses for data products are purchased or when existing background data are only shared upon agreement among consortium partners. The intellectual property rights of such data are held by external parties or specific project partners and the data cannot be made openly accessible as a project outcome; however, the data source can be cited in publications to support transparency of how results were achieved and to enable accessibility of the data from the cited source.

The datasets to be published will be assigned a persistent identifier in the data repository. In Zenodo, all datasets are assigned a DOI. The data will be made available immediately after the publication of related results, or before the end of the project if some data has not been exploited in publications but has reuse potential in further research and no barriers to publications such as IPR considerations. Access to metadata and data files in Zenodo is provided via standard protocols such as HTTP and OAI-PMH. Descriptive metadata in Zenodo is available under the CC0 public domain license, and a "tombstone page" with descriptive metadata remains accessible even in the rare case the data files are withdrawn. The published files will be shared in common formats which can be accessed without specialist software, for example tabular data in csv format.

2.3. Making Data Interoperable

Horizon Europe Guidance:

The project will aim to follow established standards in measurement procedures and describe the used standards in the metadata. Units of measurement will follow the International System of Units (SI) and numerical data will be documented clearly to identify which units of measurement the values represent. Where relevant, the project will strive to use other metadata standards such as CAS numbers for chemicals (see https://fairsharing.org/FAIRsharing.5gjjsg). As described in section 2.1, the descriptive metadata in Zenodo enables qualified references to other works related to the published datasets.

2.4. Increase Data Re-use

Other than the standard descriptive metadata, the datasets will also be accompanied by data-level metadata and documentation *as described in section 2.1*, for example in attached readme files or within the data files. Where relevant, information about the software packages used will also be documented in the dataset description or attached readme files. The accompanying documentation will include information necessary to understand and reuse the data, such as information about used samples, instrument calibration, measurement protocols etc. Non-restrictive open access licenses such as the CC-BY license will be selected to enable wide reuse whenever possible, considering potential IPR issues discussed in section 2.2.

3. Other Research Outputs

The 3D CFD simulations conducted in WP3 and WP5 will produce large datasets, up to 2TB in size. Such large datasets are not practical to publish in data repositories (in Zenodo, the usual size limit for a dataset is 50GB) and the data are also less significant for reuse and sharing than the method which generated them. Therefore, in such cases it is more suitable to share the input files for the numerical simulations, with which the simulation datasets can be reproduced. Code and simulation input files generated in the project which would be beneficial for reuse or to validate the results of the project can be shared, for example via GitHub. When utilizing existing software, such as the open-source code OpenFOAM which is foreseen to be used in WP3 and WP5, the information about used release version or other details needed for reproducibility will be given in the description of input files or other related data, for example in the readme file. An integration between GitHub and Zenodo enables the archiving of code releases from GitHub to Zenodo, with a persistent identifier and standard descriptive metadata. Such archived code can also be linked to related works such as datasets and publications in Zenodo. If there are no IPR considerations, code will be released under an open-source license, such as the MIT license.

4. Allocation of Resources

Costs of work time necessary for data management and preparation of datasets for publication have been considered in the project budget for personnel. Roles and responsibilities for data management will be decided in each work package collecting and managing research data. Each work package PI ensures that relevant staff are aware of common principles described in this Data Management Plan. Roles in the management of the Zenodo community will be decided by project partners.

Long-term storage in Zenodo is provided free of charge for the end user. Zenodo is hosted at CERN (Conseil Européen pour la Recherche Nucléaire/European Organization for Nuclear Research) and will remain operational for the lifetime of the host institution, which currently has an experimental program defined at least for the next 20 years. Decisions about what data can be published in Zenodo will be made similar to decisions about publication of results as defined in the Consortium Agreement, section 8 on Results. Legacy planning will be performed as part of WP7 on Dissemination and communication during the final year of the project, to ensure dissemination of the results beyond the end of the project. Actions regarding research data and code not published by the final year will be considered in the legacy planning. Deposition of datasets to Zenodo with delayed publication after an embargo period can be considered in cases where data can be only published after publication of related results in academic journals and such articles are still under review at the end of the project.

5. Data Security

During the project, each consortium partner will be responsible for secure storage of research data they will process. Each partner commits to using storage solutions which provide adequate possibilities for backup and protection against unauthorized access.

At Aalto, data will be stored on institutional network drives which provide automatic backup with a snapshot quick backup feature and long-term backup copies on a separate medium. Data can be shared with project partners via the project folder on MS Teams with SharePoint, provided by Aalto University IT Services. The PI ensures that the MS Teams space can be accessed only by authorized persons whose identity is verified. Project members agree not to share files located in MS Teams/SharePoint via sending open links, which carry a risk of being potentially accessed by other parties.

At CNRS, the data will be synchronized on Owncloud which is a directory backed up every evening and kept for 6 months on an 18To disk array. Backups from the last month are duplicated on a NAS (Network Attached Storage server) in the event of a crash of the main backup. The backup software used is Unitrends Backup. Long-term archiving is done on magnetic tapes kept in a fireproof box.

At VTT, during the project research, datasets will be available only to those project partners or project consortium members who have been accredited by and whose data usage has been approved by the Principal Investigator or authorized project consortium member. Project partners will be responsible for curating, preserving, disseminating, and deleting in appropriate manner the datasets in their possession. The retention time for curated datasets will be the same as for other project results at the project consortium partners. Data collected or acquired within the project will be stored in a secure IT environment behind a firewall at VTT's premises or in a secure cloud environment provided by VTT or project consortium partners selected IT service providers. Access to it will need registration and authentication. Principal Investigator will check applications for the use of data. Where access is granted to research data, this will be provided through secured telecommunications channels. Long-term and secure preservation of published research data will be ensured by using only certified and OpenAIRE guidelines compatible repositories.

At BOSMAL, the raw data generated by the operator of a specific apparatus will be converted, utilizing an appropriate software tool, into formats ensuring universal access. The collected data, with an estimated capacity of 10 GB will be stored on encrypted disks, accessed by authorized persons.

At ORLEN, all data will be stored on the local hard disc in ORLEN and if data sharing with consortium partners during the project is required, data will be shared in the project folder in MS Teams, provided by Aalto University.
At TU Wien, the data is first stored in the cloud (e.g., MS One Drive, available at TU Wien through university licenses) and then archived on local servers.

At Revolve, storage solutions with appropriate security requirements will be selected in accordance with the dissemination level (PU Public) set in the Grant Agreement and GDPR.

The project will set up a Circular Fuels "community" in Zenodo for long-term storage of publicly available datasets. Zenodo communities allow connecting datasets related to a project into a collection (see https://zenodo.org/communities#community-info and https://help.zenodo.org/docs/communities/). The community will be curated so that only Circular Fuels related content is accepted to be a part of the collection. The community feature on Zenodo requires assignment of the roles of Owner, Manager and Curator. The Owner controls the settings, and they are the only person who can delete the community, to avoid accidental deletion. Managers can invite and manage members of the Community and they also have the same user rights as Curators. Curators can review submissions and edit the records before accepting them to be published in the Community. All project members can submit their datasets resulting from the project to the Community. The division of roles will be decided among consortium partners. If project members publish datasets or other outputs in Zenodo, they should submit them to the Circular Fuels community. Research data support at Aalto University is available to arrange training on how to use Zenodo.

6. Ethics

The research will not collect data from human participants or test animals, therefore, there was no need to apply for an ethical pre-review with institutional or national ethics boards. In the administrative tasks of dissemination and communication (WP7), the GDPR will be applied if the performance of the tasks requires processing of personal data. The Privacy Policy for the project website (Annex 1) defines how personal data related to the website and newsletter subscription will be processed and how long it will be retained.

Although the project will not collect data from animals or human participants, there are also other possible ethical issues, for example regarding the environment, health, and safety to be considered in research data collection. The project has conducted an Ethics self-assessment reported in the Description of Action Part B. The Ethics self-assessment did not reveal any risks related to the various potential ethical issues. The environmental impact of the technology under development will be addressed in WP2. The laboratories where data collection will be conducted are only accessible to persons who have completed standard safety training. Regarding the crosscutting security and ethical issue of potential misuse of results, we do not foresee any ethical concerns, because the research data planned to be generated in the project is not of such character that would enable the development of weapons or misuse to harm humans, animals, or the environment. Aalto University employs experts who can provide support in case new results need to be evaluated regarding their potential misuse or for export control considerations.

7. Other Issues

The project will make use of the recommendations for good research practices in data management and the related activities such as collaborative working, training, supervision and mentoring, transparency, and honesty in sharing of research outputs, acknowledgement of authorship and other practices defined in the European Code of Conduct for Research Integrity published by ALLEA – All European Academies (DOI: 10.26356/ECOC)

Conclusions

The Data Management Plan (DMP) presents what types of data will be generated during the project activity, how research data will be stored and shared, who will have access to data, and how it will be safely stored over time. It is considered a guideline that ensures the research data will be handled responsibly and ethically during the research project and afterward. The Circular Fuels project consists of seven work packages. WP2 and WP4 will generate purely simulation and experimental data, respectively. While WP3, WP5, and WP6 will partially produce both simulation and experimental data sets. All kinds of data generated in the CFs project will follow the FAIR data policy, which means that the data will be findable, accessible, interoperable, and reusable. Each consortium partner will be responsible for the research data security and storage generated during the project. Appropriate data with a DOI will be stored and shared on the open-access data repository Zenodo. There is no human or animal participation in the CFs project, there is no need to apply for an ethical pre-review with the institutional or national ethics board. In WP7 tasks related to dissemination and communication GDPR will be applied.

Annex 1 – Privacy Notice for Website

Who we are?

Circular Fuels is a four-year project started in 2023 and received a total grant of 4,997,353.50 Euros from the European Commission within the Horizon 2020 framework, working on the adaptation to Climate Change.

Our project website https://circularfuels.eu is run by REVOLVE MEDIA (henceforth known as REVOLVE), and as the case may be by third party subcontractors, under the responsibility of REVOLVE.

When we refer to "we" or "our" in this Privacy Policy we are referring to REVOLVE and any of its affiliates. When we refer to "you" or "your", we are referring to any user of https://circularfuels.eu (the "Service").

Our Data Protection Officer ("DPO") can be reached by postal mail at DPO REVOLVE, Arlon Street 63-67, 1040 Brussels, Belgium, or by email at dpo@revolve.media.

What data we collect

This Privacy Policy relates to our use of any personal data and usage data we collect from you via the Circular Fuels website (https://circularfuels.eu), the Circular Fuels social media pages and accounts (Facebook, X, Instagram, YouTube, LinkedIn), the third-party services we use, and direct correspondences with us.

We are committed to safeguarding your personal information. Whenever you provide such information, we are legally obliged to use your information in line with the EU Regulation 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data and repealing Directive 95/46/EC (hereafter the "GDPR"). Please note that, no website can be completely secure. If you have any concerns that one of your REVOLVE accounts could have been compromised, e.g., someone could have discovered your password, please get in touch immediately.

All information that we use and/or gather will be used in accordance with the GDPR. To find out more about the EU Data Protection Rules click here.

Our Data Protection Officer ("DPO") can be reached by postal mail at DPO REVOLVE, Arlon Street 63-67, 1040 Brussels, Belgium, or by email at dpo@revolve.media.

Personal data

In our Service, we provide forms through which you can contact us, subscribe to our newsletter(s), or register for an account, and we may ask you to provide us with certain personally identifiable information that can be used to contact or identify you ("Personal data").

Through interactions with us on social media of Circular Fuels, message boards, web and mobile notifications, telephone or text, we may receive personal information about you. This can consist of personal information you have provided to us such as, for example, your name, email address, postal address, telephone or mobile number, gender or date of birth, personal interests (e.g., what newsletters you have read).

Personal data may include, but is not limited to:

- Your email address
- Your first name
- Your last name
- Your country
- Your company
- Your occupation

Usage data

Our Service uses Matomo and Mailchimp to give us an understanding of our visitors. These third-party services collect data which includes, but is not limited to:

- The date and time of your visit to our website.
- The duration of your visit to our website.
- The pages you visit during your visit to our website.
- The forms you fill in on our Service.
- The date and time of when you opened our newsletter.

To increase the privacy of our visitors, we have opted to anonymize IP addresses collected by Matomo which reduces the ability for one to discern the location of our visitors from this IP address, and further ensures the data that Matomo collects is anonymous.

Note on uploading images to our service

If you upload images to the website, you should avoid uploading images with embedded location data (EXIF GPS) included. Visitors to the website can download and extract any location data from images on the website.

Note on embedded content from other websites

Articles on this site may include embedded content (e.g., videos, images, articles, etc.). Embedded content from other websites behaves in the exact same way as if the visitor has visited the other website.

These websites may collect data about you, use cookies, embed additional third-party tracking, and monitor your interaction with that embedded content, including tracking your interaction with the embedded content if you have an account and are logged in to that website.

How we collect your data

We collect and store your personal information only when this is voluntarily shared by you through one of the forms on our website. Forms we have that collect personal data include, but is not limited to:

- *Newsletter subscription form*

We may also collect and store your personal information when you voluntarily share this with us through means of correspondence which include, but is not limited to:

- Phone call
- SMS
- Email
- Letters

Usage data

Usage data is collected at the hand of:

- Third-party services: This Services uses Matomo to collect anonymous usage data.
- Server logs: When you visit our website, our servers may automatically log the standard data provided by your web browser. It may include your IP address, your browser type and version, the pages you visit, the time and date of your visit, the time spent on each page, and other details.

How we use your data

Personal data

We use the personal information you have voluntarily shared with us to:

- Subscribe you to our newsletter following explicit consent.
- Attain a better understanding of our audience.

If you are the parent or guardian of a child under (16), we may process limited personal data about you so that you can give consent for the child to access some REVOLVE services. We may use your contact details to communicate with you about the child's account or use of services.

Usage data

We use your usage data to:

- give us a better understanding of how you use our Service so that we may improve the services offered by Circular Fuels.

- to block disruptive use and to establish the number of visits of our websites at the hand of IP addresses and device identifiers.

By combining your usage data with that of other visitors to our Service, we can get a better understanding of how our Service is used by our audience. This in turn helps us analyze the effectiveness of our Service, and sheds light on where we can make improvements to enhance the experience of our visitors and increase the value of our Service to them.

Legal bases for processing your data

We will process your personal information lawfully, fairly and in a transparent manner. We collect and process information about you only where we have legal bases for doing so.

These legal bases depend on the services you use and how you use them, meaning we collect and use your information only where:

- It is necessary for the performance of a contract to which you are a party or to take steps at your request before entering such a contract (for example, when we provide a service, you request from us);
- It satisfies a legitimate interest (which is not overridden by your data protection interests), such as for research and development, to market and promote our services, and to protect our legal rights and interests.
- You give us consent to do so for a specific purpose (for example, you might consent to us sending you our newsletter); or
- We need to process your data to comply with a legal obligation.

Where you consent to our use of information about you for a specific purpose, you have the right to change your mind at any time (but this will not affect any processing that has already taken place).

How we store your data

Personal data

The personal information you have freely shared with us is stored on:

- Microsoft Office's Outlook email server. Their privacy policy applies to the data they keep: https://privacy.microsoft.com/en-us/privacystatement
- MailChimp's server. Their privacy policy applies to the data they keep: https://mailchimp.com/legal/privacy/

Usage data

The usage data that third-party services capture from your visit is stored on:

- MailChimp's server. Their privacy policy applies to the data they keep:

  https://mailchimp.com/legal/privacy/

- Google's servers. Their privacy policy applies to the data they keep:

  https://policies.google.com/privacy/
- reCAPTCHA. Their privacy policy applies to the data they keep:

  https://www.google.com/about/company/user-consent-policy/

- *Matomo. Their privacy policy applies to the data they keep:*

  https://en.matomo.org/matomo-cloud-terms-of-service/

Retention of your personal data

We do not keep personal information for longer than is necessary. While we retain this information, we will protect it within commercially acceptable means to prevent loss and theft, as well as unauthorized access, disclosure, copying, use or modification. That said, we advise that no method of electronic transmission or storage is 100% secure and cannot guarantee absolute data security. If necessary, we may retain your personal information for our compliance with a legal obligation or in order to protect your vital interests or the vital interests of another natural person.

Retention of your usage data

We will retain usage data for internal analysis purposes. Usage Data is generally retained for a shorter period of time, except when this data is used to strengthen the security or to improve the functionality of our Service, or we are legally obligated to retain this data for longer time periods.

International transfers of personal information

The personal information we collect is stored and processed in Belgium, or where we or our partners, affiliates and third-party providers maintain facilities. By providing us with your personal information, you consent to the disclosure to these overseas third parties.

We will ensure that any transfer of personal information from countries in the European Economic Area (EEA) to countries outside the EEA will be protected by appropriate safeguards, for example by using standard data protection clauses approved by the European Commission, or the use of binding corporate rules or other legally accepted means.

Where we transfer personal information from a non-EEA country to another country, you acknowledge that third parties in other jurisdictions may not be subject to similar data protection laws to the ones in our jurisdiction. There are risks if any such third party engages in any act or practice that would contravene the data privacy laws in our jurisdiction and this might mean that you will not be able to seek redress under our jurisdiction's privacy laws.

Your data protection rights

International transfer of personal information

We would like to make sure you are fully aware of all your data protection rights. Every user is entitled to the following:

- The right to access – You have the right to request us for copies of your personal data. We may charge you a small fee for this service.
- The right to rectification – You have the right to request that we correct any information you believe is inaccurate. You also have the right to request us to complete the information you believe is incomplete.
- The right to erasure – You have the right to request that we erase your personal data, under certain conditions.
- The right to restrict processing – You have the right to request that we restrict the processing of your personal data, under certain conditions.
- The right to object to processing – You have the right to object to our processing of your personal data, under certain conditions.
- The right to data portability – You have the right to request that we transfer the data that we have collected to another organization, or directly to you, under certain conditions.

If you make a request, we have one month to respond to you. If you would like to exercise any of these rights, please contact us at our email: dpo@revolve.media.

Tracking technologies and cookies

We use Cookies and similar tracking technologies to track the activity on our Service and store certain information. Tracking technologies used are beacons, tags, and scripts to collect and track information and to improve and analyze our Service. The technologies we use may include:

- Cookies or Browser Cookies. A cookie is a small file placed on your device. You can instruct your browser to refuse all Cookies or to indicate when a Cookie is being sent. However, if you do not accept Cookies, you may not be able to use some parts of our Service. Unless you have adjusted your browser setting so that it will refuse Cookies, our Service may use Cookies. For further information, visit allaboutcookies.org.
- Web Beacons. Certain sections of our Service and our emails may contain small electronic files known as web beacons (also referred to as clear gifs, pixel tags, and single-pixel gifs) that permit us, for example, to count users who have visited those pages or opened an email and for other related website statistics (for example, recording the popularity of a certain section and verifying system and server integrity). Normally these beacons do not contain personally identifiable information and are only used to track the effectiveness of particular marketing campaigns. In case a web beacon is used to collect personal information, they will be considered as a 'Third party cookie' for which your consent will be asked in advance.

Why do we use cookies

Our Company uses cookies in a range of ways to improve your experience on our website, including:

- keeping you signed in
- understanding how you use our Service

What cookies do we use

Functionality cookies – Our Company uses these cookies so that we recognize you on our website and remember your previously selected preferences. These could include what language you prefer.

If you have an account and you log in to this site, we will set a temporary cookie to determine if your browser accepts cookies. This cookie contains no personal data and is discarded when you close your browser.

When you log in, we will also set up several cookies to save your login information and your screen display choices. Login cookies last for two days, and screen options cookies last for a year. If you select "Remember Me", your login will persist for two weeks. If you log out of your account, the login cookies will be removed.

Third-party cookies – Following your explicit consent at the hand of our cookie consent modal, third party cookies from Matomo will be set in your browser. These help us distinguish return visits from first time visits in our Matomo, amongst other.

How to manage cookies

Via our website

You can turn on or off third-party cookies using our cookies consent manager. Click here to open the cookies consent manager or click on the gear icon on the bottom left of your screen.

Via your browser

Most web browsers are set to accept cookies but, if you do not want to receive cookies, you can change your browser settings to notify you when cookies are sent, or you can reject the cookies altogether. To do so you may, for example, consult:

Internet Explorer: https://support.microsoft.com/en-us/help/17442/windows-internet-explorer-deletemanage-cookies

Chrome: https://support.google.com/chrome/answer/95647?hl=en

Firefox: https://support.mozilla.org/en-US/kb/enable-and-disable-cookies-website-preferences

Safari: https://support.apple.com/kb/PH5042?locale=en_GB

It is important to note that if you change your settings and block certain cookies, you will not be able to take full advantage of some features of our services, and we might not be able to provide some features you have previously chosen to receive.

Changes to our privacy policy

Our Company keeps its privacy policy under regular review and places any updates on this web page. This privacy policy was last updated on 25 August 2021.

Children's privacy

Our Service does not address anyone under the age of 18 ("Children").

We do not knowingly collect personally identifiable information from anyone under the age of 18. If you are a parent or guardian and you are aware that your Children has provided us with Personal Data, please contact us. If we become aware that

we have collected Personal Data from children without verification of parental consent, we take steps to remove that information from our servers.

How to contact us

If you have any questions about Our Company's privacy policy, the data we hold on to you, or you would like to exercise one of your data protection rights, please do not hesitate to contact us. Email us at: dpo@revolve.media