DATA MANAGEMENT PLAN

# 1. Data description and collection or re-use of existing data

## How will new data be collected or produced and/or how will existing data be re-used?

Within the scope of the project multiple types of qualitative and quantitative data will be generated. It will be related to microscopic images, light scattering, electrochemical, electronic, mechanical and physico-chemical measurements,.

SEM/AFM/TEM micrographs, rheometry, and molecular weight studies, copolymer designs and technology procedures.

Raw data will be analyzed and expressed as graphs, tables and annotated images, some of which are expected to be published. Raw data will be stored in an organized manner by all research team members and sufficient care will be taken to prevent any data loss. In essence, all data processed in this project will be generated by the research activities of the team members within the scope of activities planned and described in the research plan.

## What data (for example the types, formats, and volumes) will be collected or produced?

Data generated will be in various formats and sizes of databases, most of which will be accessible using common software allowing easy access and long-term validity during and after the project, thus facilitating data sharing.

Micrographs in. jpg or. tiff format. The size of a single data set depends on the measurement approach and is typically.

MB. Around various images are expected to be taken within the proposed project.

• Dokumentacja i jakość danych.

# 2. Documentation and data quality

## What metadata and documentation (for example methodology or data collection and way of organising data) will accompany data?

Most data will be collected in a highly automated manner by the equipment which in some cases will include additional metadata. Data files will be labeled appropriately and placed in clearly labeled folders. Gdańsk Tech operates a dedicated platform, MOST Wiedzy, which contains an Open Research Data Catalog (commonly named Bridge of Data), where part of the collected in this project data will be made available free of charge to the scientific community, entrepreneurs and the public. The available research data will be described by attributes developed by dedicated, experienced scientific teams. This metadata will be in line with widely recognized metadata standards and schemas for effective data dissemination as will allow other external computer systems, databases or web services to interpret the collected data. Metadata descriptions will be stored in JSON-LD format. Contributor will be identified and authorized by ORCID.

## What data quality control measures will be used?

Standard protocols will be optimized and used to collect data to ensure reliability and consistency. All experiments will incorporate appropriate positive and negative controls to ensure validity. Whenever possible experimental setups involving internal controls will be preferred. Project staff will be trained in techniques they use to ensure quality data.

Data will be discussed in weekly lab meetings to ensure correct procedures. Data will be cataloged in a way to fulfill FAIR standards requirements.

# 3. Storage and backup during the research process

## How will data and metadata be stored and backed up during the research process?

Data will be kept at secured hard drives and on-line clouds (Microsoft One Drive, A for faculty license) of all members of the research team.

Data backups on hard drives will be done weekly.

## How will data security and protection of sensitive data be taken care of during the research?

No medical, personal or otherwise sensitive data is expected to be generated during the proposed project. Data recovery will be possible thanks to backup procedures. Data storage will be kept in accordance with the policy of the.

Gdańsk Tech, preventing access without the authorization.

• Wymogi prawne, kodeks postępowania.

Nie dotyczy

# 4. Legal requirements, codes of conduct

## If personal data are processed, how will compliance with legislation on personal data and on data security be ensured?

## How will other legal issues, such as intelectual property rights and ownership, be managed? What legislation is applicable?

The ownership and management of any intellectual property relating to the Project remain in the rights of the Gdansk.

University of Technology and the research team members accordingly to the Polish law and institutional regulations. Whenever possible, dissemination of the deliverables of the project with be carried out using open-access channels, e. g. under Creative Commons licenses. Whenever possible, dissemination of the project's deliverables will be carried out using open-access channels, e. g., under CC BY or CC licenses. Metadata descriptions for these datasets will always be available without any restrictions (CC. No embargo or other restrictions are necessary.

• Udostępnianie i długotrwałe przechowywanie danych.

# 5. Data sharing and long-term preservation

## How and when will data be shared? Are there possible restrictions to data sharing or embargo reasons?

Selected data will be uploaded as soon as possible (not later than after acceptance of the manuscript for publication) and kept at open repository MOST Wiedzy Open Research Data Catalog. There are no restrictions regarding data sharing and no sensitive data will be published. Majority of scientific journals do not require the direct sharing of raw data. However, selected datasets published in a processed way in scientific journals, will be preserved according to the rules imposed by the specific journal (e. g. for or years).

## How will data for preservation be selected, and where will data be preserved long-term (for example a data repository or archive)?

repozytorium lub archiwum danych).

The data will be stored in a dedicated MOST Wiedzy Open Research Data Catalog (described in detail in 2. repository, which is Core Trust Seal certified. This certificate confirms the repository's trustworthiness and sustainability. Data deposited there will be automatically categorized for long-term storage without an expiration date. The data to be deposited in the repository will be chosen on the basis of its scientific quality and exemplarity.

Moreover, all data not selected for sharing and preservation in the MOST Wiedzy repository will also be stored for at least years after the project is finished and access to them will be possible only with the PI consent.

## What methods or software tools will be needed to access and use the data?

Most of the data will be produced in standard ASCII formats and will require no further transformation. Data will be stored using the dedicated repository MOST Wiedzy Open Research Data Catalogue.

## How will the application of a unique and persistent identifier (such us a Digital Object Identifier (DOI)) to each data set be ensured?

The MOST Wiedzy Open Research Data Catalogue repository (described in detail in 2. supports obtaining unique DOI numbers for each of the uploaded datasets. Data stored within this project will be linked with such unique DOI numbers.

• Zadania związane z zarządzaniem danymi oraz zasoby.

# 6. Data management responsibilities and resources

## Who (for example role, position, and institution) will be responsible for data management (i.e the data steward)?

Open Science Competence Center which is a constituent part of the Gdańsk Tech will be responsible for Data.

Management Plan for this Project and for quality of metadata descriptions of datasets in the repository. Project PI (Dr.

Khodadadiyazdi) will be responsible for the procedures of assessment and overall data quality.

## What resources (for example financial and time) will be dedicated to data management and ensuring the data will be FAIR (Findable, Accessible, Interoperable, Re-usable)?