

## National Science Foundation (NSF): NSF-CHE: Chemistry Division

### Products of the Research

Describe the types of data (including metadata and annotations, primary or analyzed) and products that will be generated by the research, for example description of samples, numerical data on chemical systems such as spectra, chemical and physical properties, time-dependent information on chemical and physical processes, theoretical formalisms, experimental protocols, algorithm specifications, database schemas and data tables, data produced by simulations and software. Data and products generated from Broader Impact activities, such as educational materials, participant information, tutorials and other web-based materials, as well as assessment results, should also be included in the DMP. You may request funds to cover costs of publication, page charges, or preparation of data as a direct cost in your budget proposal, which is evaluated as part of the merit review process. Any costs associated with implementing the DMP should be explained in the Budget Justification.

*Guidance:*

- [NSF-CHE Advice to PIs on Data Management Plans](#)
- [NSF Proposal & Award Policies & Procedures Guide \(PAPPG\)](#)
- [NSF plans for data management and sharing of the products of research \(PAPPG\)](#)
- [NSF Frequently Asked Questions \(FAQs\) for Public Access](#)

### Data Format

Describe the format and media in which the data or products are stored (e.g., hardcopy notebook and/or instrument outputs, ASCII, html, jpeg or other formats). Where data are stored in unusual or not generally-accessible formats, explain how the data may be converted to a more accessible format or otherwise made available to interested parties. In general, solutions and remedies to providing data in an accessible format should be provided with minimal added cost.

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### Access to Data and Data Sharing Practices and Policies

"Access to data" refers to data made accessible without explicit request from the interested party, for example those posted on a website or made available to a public database. Describe your plans, if any, for providing such general access to data, including websites maintained by your research group, and direct contributions to public databases or software repositories (e.g., NMRShiftDB, the Protein Data Bank, Cambridge Crystallographic Data Centre, Inorganic Crystal Structure Database in Karlsruhe, Zeolite Structure Database and Github). For software or code developed as part of the project, include a description of how users can access the code (e.g. licensing, open source) and specific details of the hosting, distribution and dissemination plans. Also describe your practice or policies regarding the release of data for access, for example whether data are posted before or after formal publication. Note as well any anticipated inclusion of your data in databases that mine the published literature (e.g. PubChem, NIST Chemistry WebBook). Consider using the Digital Object Identifiers (DOI) assignment mechanism not just for journal articles, but for suitably-archived, publishable data sets.

"Data sharing" refers to the release of data in response to a specific request from an interested party. Describe your policies for data sharing including, where applicable, provisions for protection of privacy, confidentiality, intellectual property, national security, or other rights or requirements. Discussion on the compliance with the NSF's *Public Access Policy* is also encouraged.

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### Policies for Re-Use, Re-Distribution, and Production of Derivatives

Describe your policies regarding the use of data provided via general access or sharing. Practices for appropriate protection of privacy, confidentiality, security, intellectual property, and other rights should be communicated. The rights and obligations of those who access, use, and share your data with others should be defined. For example, if you plan to provide data and images on your website, will the website contain disclaimers or conditions regarding the use of the data in other publications or products?

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### Archiving of Data

Describe when the data should be archived, how data will be archived, and how preservation of access will be handled. Are there provisions for data backup? Will hardcopy notebooks, instrument outputs, and physical samples be stored in a location where there are safeguards against fire or water damage? Is there a plan to transfer digitized information to new storage media or devices as technological standards or practices change? What are the physical and cyber resources and facilities that will be used for data preservation and storage? Will there be an easily accessible index that documents where all archived data are stored and how they can be accessed? What are the roles and responsibilities of all parties with respect to the management and archiving of the data after the grant ends? How long will the data be maintained after the grant ends?

CHE-supported large research centers or other programs may specify more stringent data storage, sharing and archiving procedures for research conducted under their awards. Such requirements will be specified in the program solicitation and award conditions.

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