1. ABOUT THE DATASET

--------------------

Title: Dataset associated with “Auxetic Liquid Crystal Elastomers: Overcoming Barriers to Scale-Up”

Creator(s): Stuart Berrow, Thomas Raistrick, Richard Mandle and Helen Gleeson

Organisation(s): University of Leeds

Rights-holder(s): Unless otherwise stated, Copyright 2025 University of Leeds

Publication Year: 2025

Description: This dataset contains the data associated with the article titled “Auxetic Liquid Crystal Elastomers: Overcoming Barriers to Scale-Up", published in*ACS Applied Polymer Materials*. This data is provided in the form of either the raw data collected, or the files used to plot the figures in the published article. The data is mainly focused on material properties of the liquid crystal elastomers (LCEs) detailed in the article, including: mechanical testing of the LCEs, phase transition analysis and X-ray scattering studies.

Cite as: Berrow, Stuart; Raistrick, Thomas; Mandle, Richard; Gleeson, Helen (2025): Dataset associated with “Auxetic Liquid Crystal Elastomers: Overcoming Barriers to Scale-Up”. University of Leeds. [Dataset] https://doi.org/10.5518/1614.

Related publication: S. R. Berrow, T. Raistrick, R. J. Mandle, H. F. Gleeson, Auxetic Liquid Crystal Elastomers: Overcoming Barriers to Scale-Up, ACS Appl. Polym. Mater., 2025

Contact: S.R.Berrow@leeds.ac.uk

2. TERMS OF USE

---------------

Copyright 2025 University of Leeds. Unless otherwise stated, this dataset is licensed under a Creative Commons Attribution 4.0 International Licence: https://creativecommons.org/licenses/by/4.0/

3. PROJECT AND FUNDING INFORMATION

----------------------------------

**SRB, TR and HFG:**

Title: Stretching the boundaries; new soft matter systems

Dates: 15th August 2022 – 14th August 2027

Funding organisation: Engineering and physical sciences research council

Grant no.: EP/V054724/1

**RJM:**

Title: A New Order of Liquids: Polar and ferroelectric orientationally modulated soft materials

Dates: March 2022 - March 2026

Funding organisation: UK Research and Innovation, Future Leaders Fellowships

Grant no.: MR/W006391/1

4. CONTENTS

-----------

File listing

* **Data.zip** – A zip folder containing the data file used to produce Figure 7 in the research article, i.e., the mechanical analysis of the polymers conducted at room temperature.

The files with extension .opju are to be opened in Origin 2023b software. Files with the extension.001 are to be opened in TA Universal Analysis software, and files with he extension .h5z are to be opened in Anton Parr SAXSAnalysis.

5. METHODS

----------

Details of all of the methods used to collect this data can be found in the associated publication, ‘Auxetic Liquid Crystal Elastomers: Overcoming Barriers to Scale-Up”, published in *ACS Applied Polymer Materials.*