

SOLID STATE CHEMISTRY – EXERCISE NO 1			
Temat ćwiczenia: Crystallization processes			
Wydział:	CHEMICAL TECHNOLOGY	Stopień: I	Sem.: IV
Kierunek:	Chemical technology		
Prowadzący ćwiczenie: mgr inż. Dorota Tomczak		Data wykonania:	
Wykonujący ćwiczenie:			
Przygotowanie teoretyczne:	Opracowanie ćwiczenia:	Ocena:	

1. Aim of the exercise:

theoretical - learning issues related to the process of polymer crystallization

practical - getting to know the possibilities of studying the structure of polymers using optical microscopy

2. Study issues:

isothermal crystallization; non-isothermal crystallization; primary and secondary nucleation; heterogeneous and homogeneous crystallization; crystallization from the liquid phase; stages of the crystallization process; equilibrium and non-equilibrium crystallization

3. Literature:

1. Piotr M. Synowiec „Krystalizacja przemysłowa z roztworu” WNT, Warszawa 2008
2. „Introduction to physical polymer science”, L. H. Sperling, Wiley-Interscience, New York 2001
3. „Solid state chemistry and its applications”, Anthony R. West., John Wiley & Sons, Chichester, 2022

4. Exercise performance:

1. Turn on the Boetelius table, set the right temperature.
2. Place the polypropylene / polyethylene granulate on a microscope slide, then place it on the Boetelius table.
 - a) After partial melting of the granulate, cover it from the top with a coverslip, press and leave until completely melted. Prepare two samples in this way
 - b) After the granulate has partially melted add filler to it. Cover it with a cover slip, press, and leave until completely melted. Prepare two samples in this way.

3. Leave one of the molten samples (each obtained in 2a and 2b) to boil on an off Boetelius table, and the other cool in air.
4. Examine the crystallized samples under a microscope, determining the quantity and size of spherulites.

5. Safety instructions:

- I. Perform all tests and measurements in accordance with the instructor's instructions.
- II. Know SDS cards of chemicals used.