



**University of Miskolc**  
**Faculty of Materials Science and Engineering**  
**Antal Kerpely Doctoral School of Materials Science**  
**and Technology**



# PVC materials

Dr. Marossy Kálmán

**PROGRAM DESCRIPTION**

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## Lecturer

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## Recommended for

Course is recommended for all students of the Antal Kerpely Doctoral School, especially for the ones working in the field of polymers.

## Language

Hungarian or English.

## Aim

The course's aim is to introduce PVC as polymer and the additives used in recipes for PVC compositions. Providing the ability for comparison of basic PVC compositions. PVC related special knowledge is only available at the University of Miskolc.

## Methodology

Consultations carried out in smaller groups of 1-3. The topics will be discussed during the consultations.

## Thematics

PVC types produced by different polymerization techniques

Determination of molecular weight of PVC, K-value

Additives

- stabilizers
- plasticizers
- fillers
- lubricants, process aids
- toughness improving additives
- pigments
- other functional additives, flame retardants, smoke reducers, anti-static agents

Preparation of PVC compositions, preparation of powder mixtures, granulates

## Recycling of PVC

### Recommended literature

- Becker, G.W. – Braun, D.: Kunststoff Handbuch 2/1; 2/2 „Polyvinylchlorid“ Hanser (1985) (német nyelven)
- Technical datasheets of additives
- Recent literature articles

### Completion, Grading

Oral examination.

### Complex Examination Questions

1. Explain the super molecular structure of PVC! How is it formed and how it affects the properties of PVC products?
2. Introduce the stabilizers for PVC! Group the known stabilizers by performance, biological effects and optical properties.
3. PVC as a polymer is self extinguishing. Why are flame-retardants included in PVC compositions? List some examples!
4. List the additives for preparing impact resistant PVC compositions! Explain, how the different types work, the structures they are forming! What is a processing window?
5. Group PVC plasticizers by their chemical structure, performance and compatibility! What are the requirements they have to fulfill?