UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

New lignin-based sustainable materials: science and technological aspects

86R-XXXVI-LBSM

Aims

Contents

Lignin is the second most abundant organic macromolecule in nature. Its extraction tends to increase worldwide, demanding new applications for an efficient lignin use. This course gives an overview on the whole lignin life cycle, from biosynthesis to industrial applications .In particular, the following subjects will be developed:

- -Chemistry of lignocellulosic materials
- -Lignin biosynthesis, chemical structures and reactivity
- -Lignin extraction processes (kraft, alkaline, organosolv)
- -Main techniques in Lignin characterization (FT-IR, GPC, 31P-NMR,13C-NMR, 2D-HSQC, EPR, SEM, ICP-AES)
- -Plasma technology for lignin modification: plasma treatment aimed to surface functionalization for lignin-based composites

- -Sustainability initiative in SABIC: certified polymers (bio-renewable and circular polymers) and bio-based polymers (PE-starch blendsand PE-lignin blends).

Detailed program

Prerequisites

1 CFU, 8 hours, language: English.

Teaching form

1 CFU, 8 ore, corso erogato in lingua italiana.

Textbook and teaching resource

Semester

Assessment method

Oral colloquium.

Office hours