

**“BABEȘ-BOLYAI” UNIVERSITY**  
**FACULTY OF CHEMISTRY AND CHEMICAL ENGINEERING**

# **Removal and electrochemical recovery of zinc ions from wastewaters**

*Scientific supervisor*

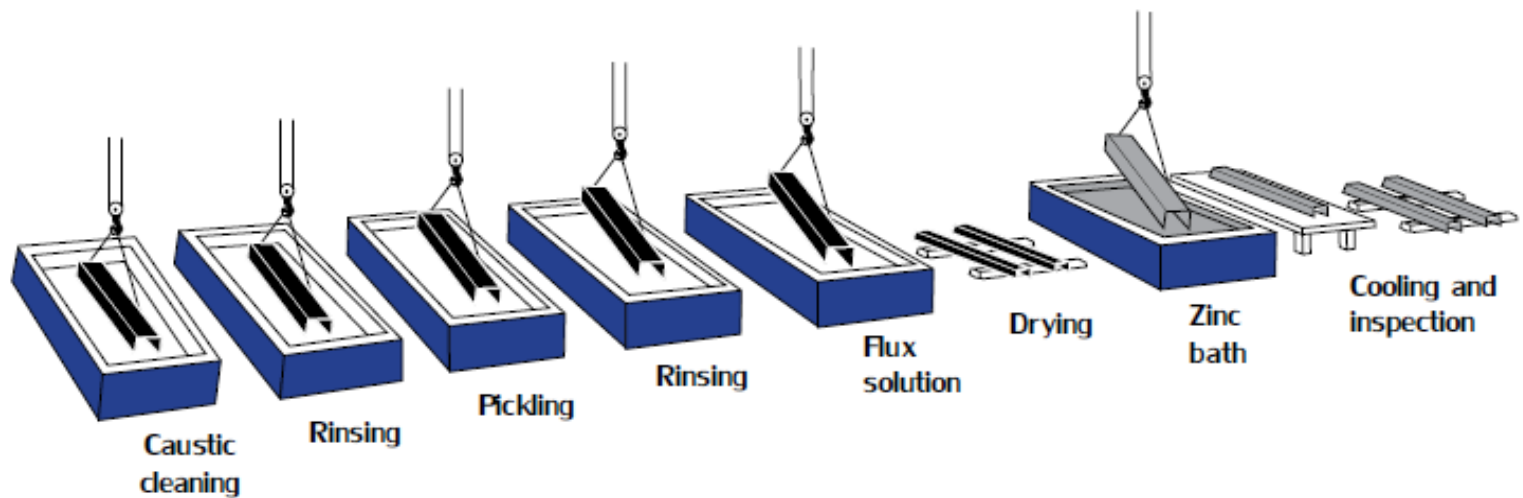
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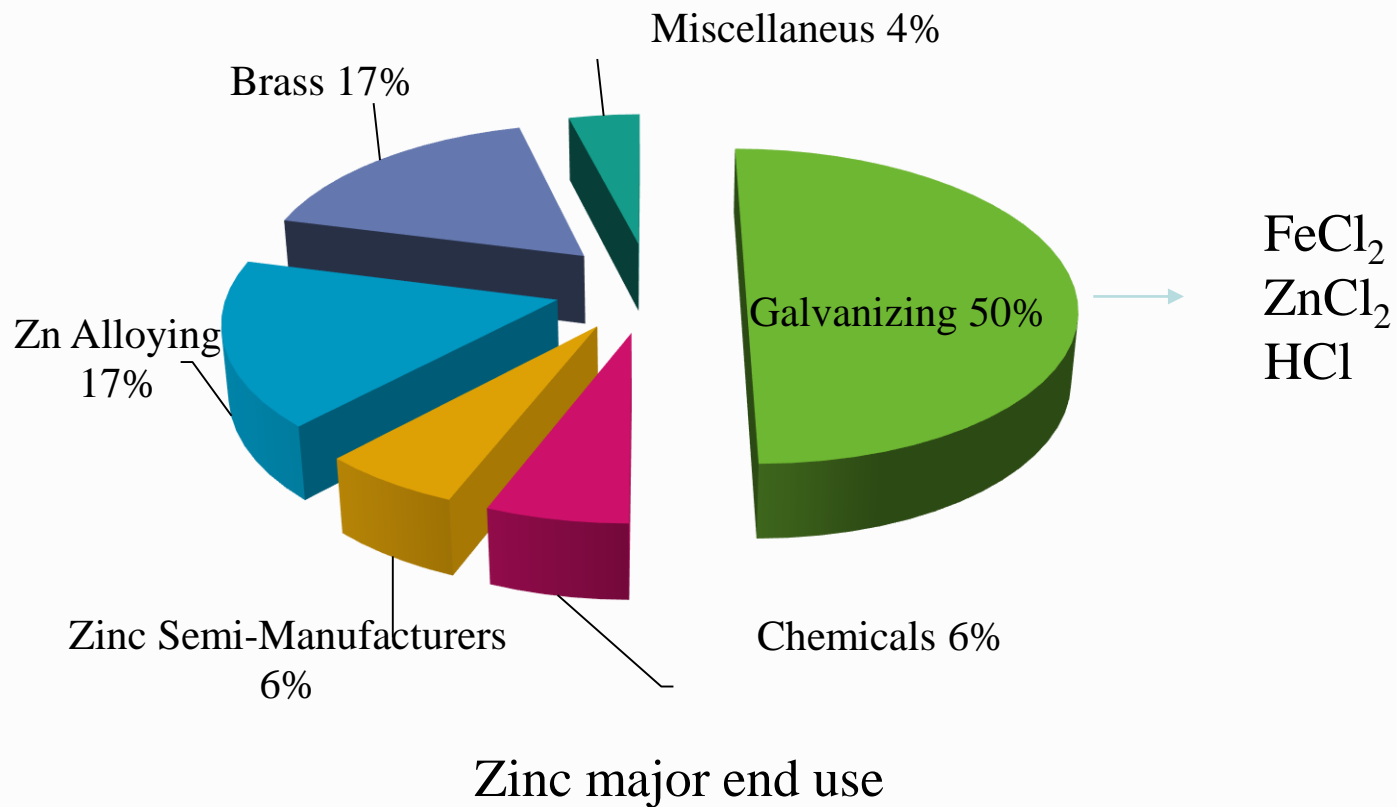
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# Introduction



## The flux of the Hot-Dip Galvanizing Process\*



# Objectives

- ✓ Zinc removal as chloride complexes in batch mode
- ✓ Zinc removal as chloride complexes in fixed bed
- X Electroextraction tests for Zn recovery from diluted solutions
- X Electroextraction tests for Zn recovery from concentrated solutions

# Future studies - Zinc electroextraction

- Electroextraction tests for Zn recovery from diluted or concentrated solutions as
  - ❖ powder
  - ❖ needles
  - ❖ fibers
- The influence of the following electrochemical parameters will be studied :
  - ❖ Current density
  - ❖ Temperature
  - ❖ Stirring rate
  - ❖ Different Electrode types
  - ❖ Concentration
- The characterization of the obtained zinc deposits with techniques available

# Articles

- ✓ 1. E. Gîlcă, A. Măicăneanu, P. Ilea, Removal of zinc ions as zinc chloride complexes from strongly acidic aqueous solution by ionic exchange, *Cent. Eur. J. Chem.* 12(8) (2014) 821-828 IF 2013: 1.329
- ✓ 2. E. Gîlcă, A. Ruşolan, A. Măicăneanu, P. Ilea, Removal of zinc ions as zinc chloride complexes using Purolite A103S resin, *Bull. Romanian Chem. Eng. Soc.* (1) (2014) 66-73

# Conferences

- ✓ 1. Emilia Gîlcă, Andrada Măicăneanu and Petru Ilea, REMOVAL of ZINC IONS from AQUEOUS SOLUTION by ION EXCHANGE, 18th Romanian International Conference on Chemistry and Chemical Engineering, September 4-7, 2013, Sinaia, Romania - **oral presentation**
- ✓ 2. Emilia Gîlcă, Andrada Ruşolan, Andrada Măicăneanu, Petru Ilea, Kinetics studies for zinc sorption on Purolite A103S resin, The 10th ELSEDIMIA International Conferences 18th – 19th September 2014, Cluj-Napoca, Romania, **poster**
- ✓ 3. Emilia Gîlcă, Andrada Ruşolan, Andrada Măicăneanu and Petru Ilea, ZINC SORPTION ON PUROLITE A103S RESIN. THERMODYNAMIC STUDY. The XXXIII-nd ROMANIAN CHEMISTRY CONFERENCE, 1-3 October 2014, Căciulata, Romania, - **oral presentation**
- ✓ 4. Emilia Gîlcă, Andrada Măicăneanu, Petru Ilea, Design of experiments for zinc removal as zinc chloride complexes on an anion exchange resin using Taguchi method, 20TH INTERNATIONAL CONFERENCE ON CHEMISTRY, CLUJ – NAPOCA, 6-9 NOVEMBER, 2014 **poster**

**Thank you for your  
attention!**