

LSRE-LCM SHAKING THE PRESENT
SHAPING THE FUTURE



LABORATORY OF SEPARATION AND REACTION ENGINEERING
LABORATORY OF CATALYSIS AND MATERIALS



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REMEDIATION OF A LEACHATE FROM AN INDUSTRIAL HAZARDOUS WASTE LANDFILL: A BIG CHALLENGE



IWA
the international
water association

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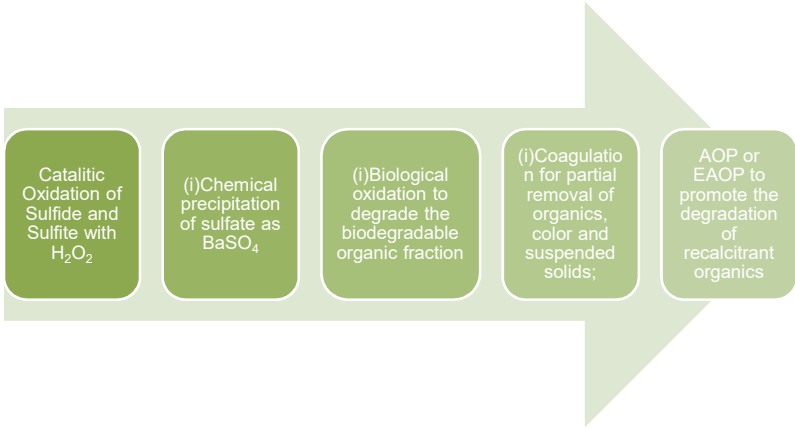
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Introduction

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A multistage treatment

- Hazardous industrial solid waste landfill (ISWL) leachate: rich in sulfur compounds.



Catalytic Oxidation of Sulfide and Sulfite with H_2O_2

(i) Chemical precipitation of sulfate as $BaSO_4$

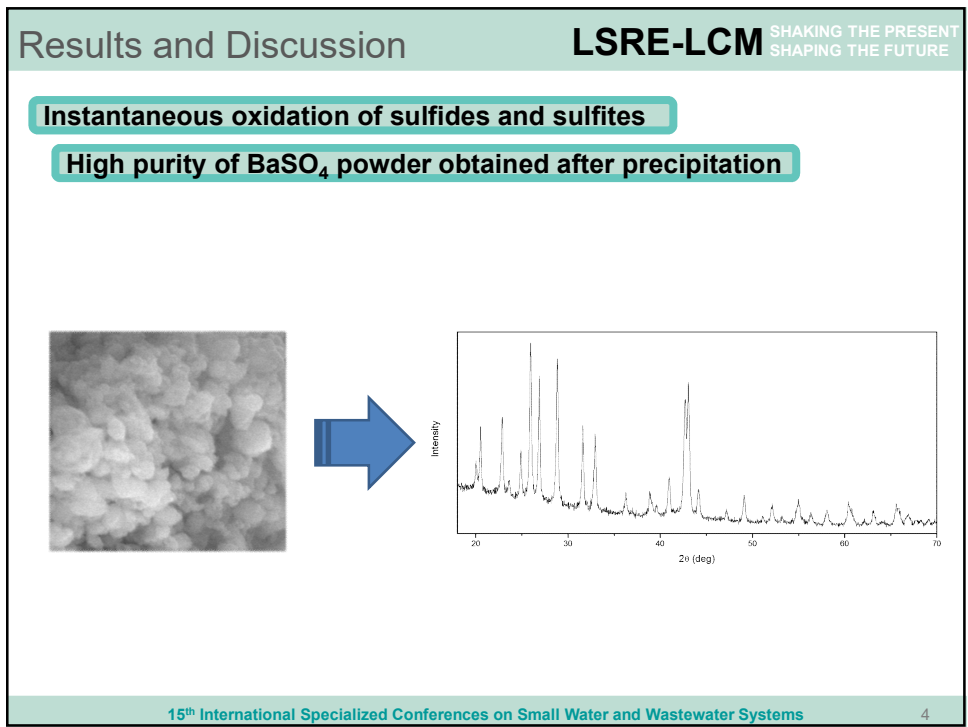
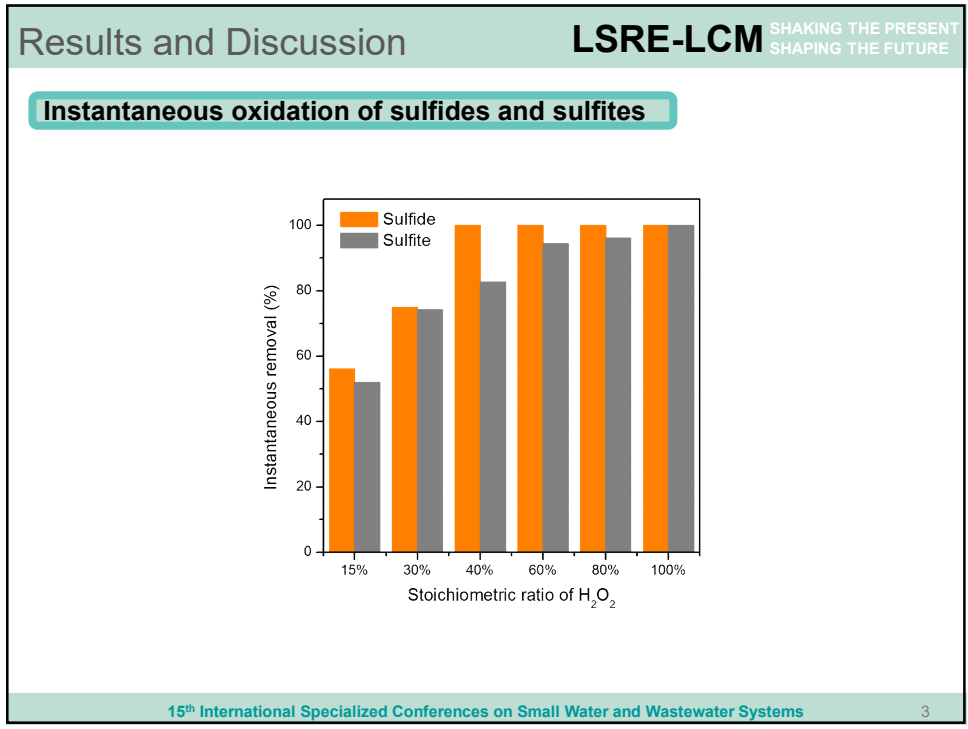
(i) Biological oxidation to degrade the biodegradable organic fraction

(i) Coagulation for partial removal of organics, color and suspended solids;

AOP or EAOP to promote the degradation of recalcitrant organics

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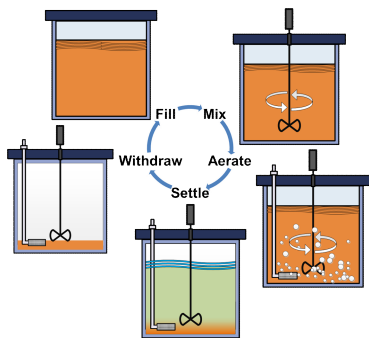


Results and Discussion **LSRE-LCM** SHAKING THE PRESENT SHAPING THE FUTURE

Instantaneous oxidation of sulfides and sulfites

High purity of BaSO₄ powder obtained after precipitation

40% of DOC was removed after biological oxidation



- Dissolved O₂: ~ 2 mg L⁻¹;
- Residence time: ~ 4 days

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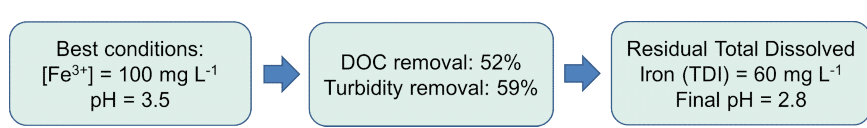
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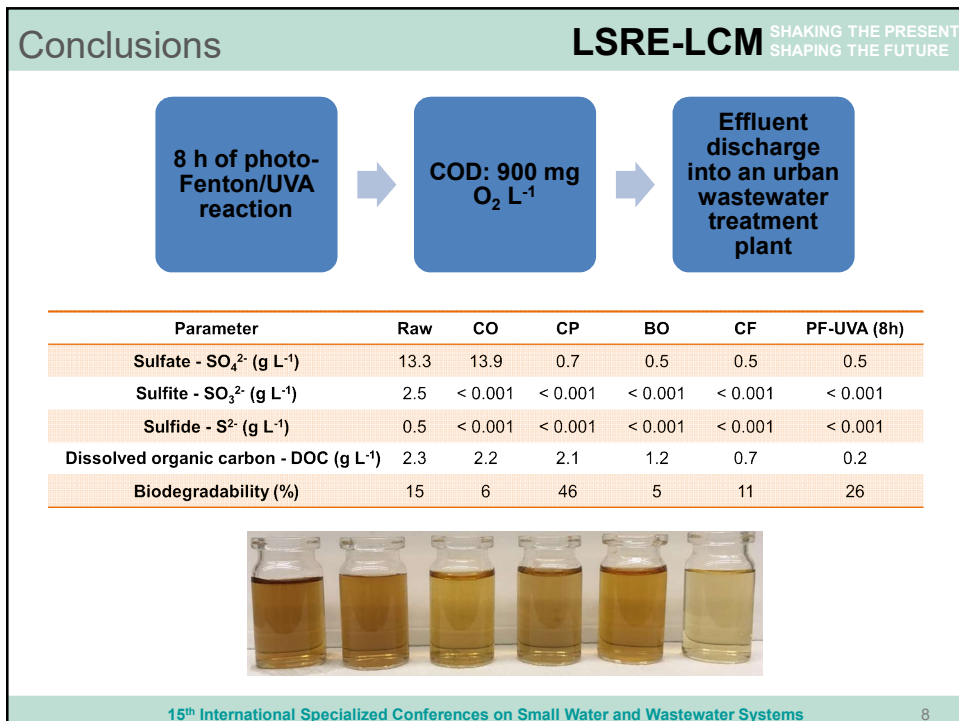
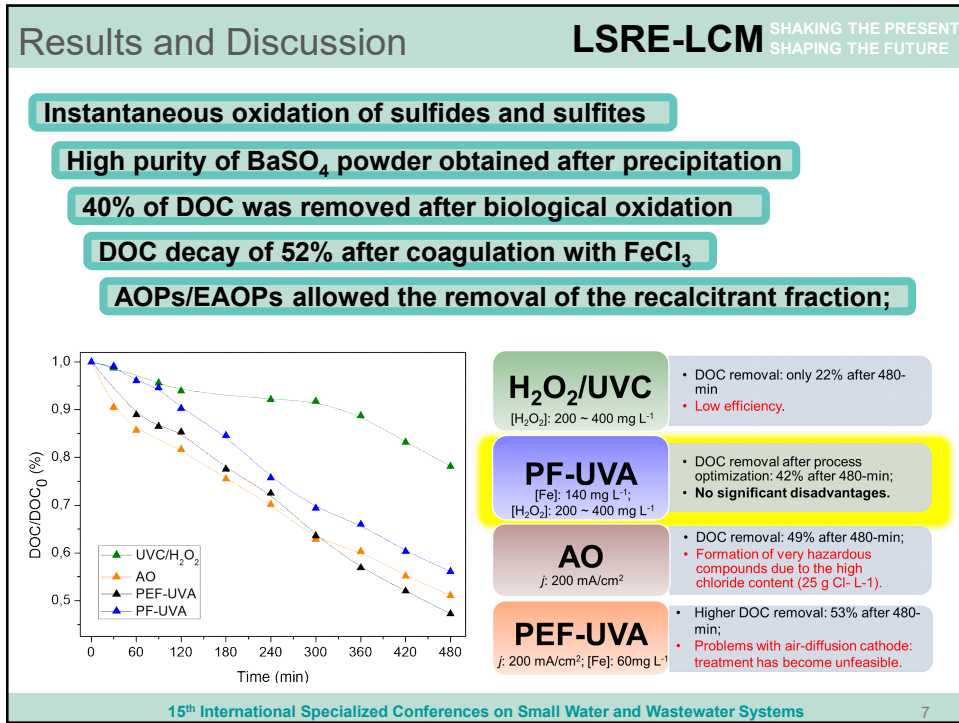
DOC decay of 52% after coagulation with FeCl₃



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    graph LR
      A["Best conditions:  
[Fe3+] = 100 mg L-1  
pH = 3.5"] --> B["DOC removal: 52%  
Turbidity removal: 59%"]
      B --> C["Residual Total Dissolved  
Iron (TDI) = 60 mg L-1  
Final pH = 2.8"]
    
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Acknowledgements

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Thank you for your kind attention!

For further information please visit poster 11

