Basis of Sustainable Environmental Systems
HSLU, Semester 3

Matteo Frongillo

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Contents

I TODO ops **3**

II Separation techniques **4**

1 A bit of chem again **4**
1.1 Solutions key terms . . . 4
1.2 Classification of techniques . . . 4

2 Physical separation **5**
2.1 Sedimentation . . . 5
2.2 Decantation . . . 5
2.3 Filtration . . . 5
2.3.1 Sand filtration . . . 5
2.3.2 Reverse osmosis . . . 5
2.4 Centrifugation . . . 5
2.5 Dissolved Air Flotation (DAF) . . . 5
2.6 Magnetic separation . . . 5
2.7 Screening and Sieving . . . 5

3 Chemical separation **6**
3.1 Flocculation . . . 6
3.1.1 Flocculant . . . 6
3.1.2 Coagulation . . . 6
3.2 Electrocoagulation . . . 6
3.3 Precipitation . . . 6
3.4 Adsorbtion . . . 6
3.4.1 Activated carbon . . . 6
3.5 Absorption . . . 6
3.5.1 Wet scrubber . . . 6
3.6 Ion exchange . . . 6
3.7 Crystallization . . . 6
3.8 Evaporation . . . 6
3.9 Sublimation . . . 6

4 Advanced/Emerging separation **7**
4.1 Mebrane filtration . . . 7
4.1.1 Micro osmosis . . . 7
4.1.2 Nano osmosis . . . 7
4.1.3 Ultra osmosis . . . 7
4.1.4 Reverse osmosis . . . 7
4.2 Electrodialysis . . . 7
4.3 Extraction . . . 7
4.3.1 Liquid-Liquid Extraction (LLE) . . . 7
4.3.2 Soxhlet extraction . . . 7

4.3.3 Supercritical Fluid Extraction 7
4.4 Air stripping 7
4.5 Electrostatic precipitator (ESP) 7

Part I

TODO ops

i'll do it later don't worry

Part II

Separation techniques

1 A bit of chem again

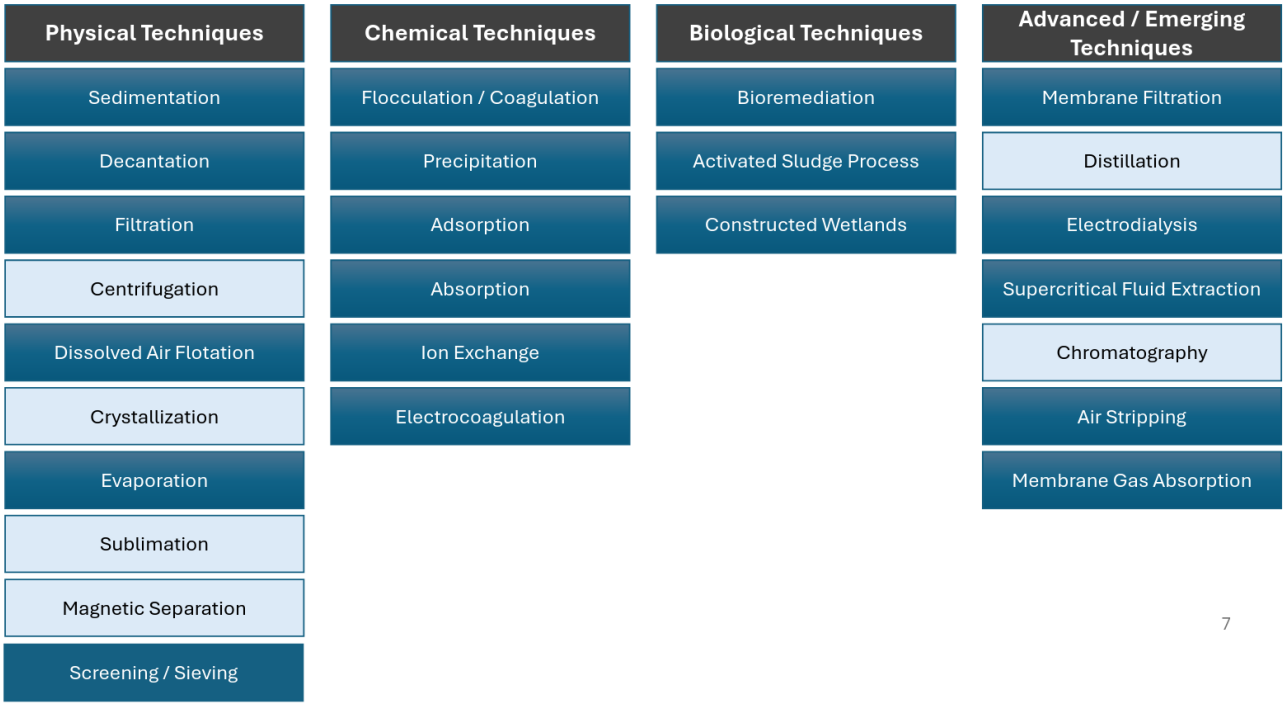
1.1 Solutions key terms

- **Solvent**: the substance that dissolves another substance
- **Solute**: the substance that is dissolved in a solvent
- **Solution**: it's a homogeneous mixture of two or more substances

What it is needed?

- Identify the substances to be separated from the mixture
- To collect useful substances free from impurities
- To remove unwanted particles

1.2 Classification of techniques



Separation techniques overview

2 Physical separation

2.1 Sedimentation

2.2 Decantation

2.3 Filtration

2.3.1 Sand filtration

2.3.2 Reverse osmosis

2.4 Centrifugation

2.5 Dissolved Air Flotation (DAF)

2.6 Magnetic separation

2.7 Screening and Sieving

3 Chemical separation

3.1 Flocculation

3.1.1 Flocculant

3.1.2 Coagulation

3.2 Electrocoagulation

3.3 Precipitation

3.4 Adsorbtion

3.4.1 Activated carbon

3.5 Absorption

3.5.1 Wet scrubber

3.6 Ion exchange

3.7 Crystallization

3.8 Evaporation

3.9 Sublimation

4 Advanced/Emerging separation

4.1 Mebrane filtration

4.1.1 Micro osmosis

4.1.2 Nano osmosis

4.1.3 Ultra osmosis

4.1.4 Reverse osmosis

4.2 Electrodialysis

4.3 Extraction

4.3.1 Liquid-Liquid Extraction (LLE)

4.3.2 Soxhlet extraction

4.3.3 Supercritical Fluid Extraction

4.4 Air stripping

Same as Wet Scrubber, but with water

4.5 Electrostatic precipitator (ESP)