



# Axel Semrau GmbH & Co. KG

CHRONECT SYMBIOSIS ENVIRON

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# CHRONECT Symbiosis Environ

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Use of system

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Requirements

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Configuration

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Schematic of workflows

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# Environmental analysis in water

## End users use

- ▶ This is analytical system for response of spill accident and trend monitoring of **environment-related substances such as medicinal substance and PFCs** compounds in the Nak-dong river.
- ▶ This analytical instrument is used to monitor **SVOCs** using online SPE and to analyze Nak-dong river samples in an offline system when a water pollution accident occurs.
- ▶ The purpose of this analytical instrument is to precisely monitor harmful substances such as **PFCs, Pesticides (diazinon, prathin, fenitrothion), PCBs, De-(2-Ethylhexyl)Phthalate** and to monitor new substances efficiently in case of water pollution accidents in order to secure safe drinking water source.

**Offline** preferred to use different analytical systems  
after sample preparation!

# Environmental - water / wastewater

## Technical requirements

- ▶ Offline SPE solution with fraction collection
- ▶ Connect 20 samples (100 ml – 500 ml)
- ▶ Usual pressure range up to 140 bar
- ▶ Use of 4 solvents for HPD (MeOH, Hexane, Water, Acetone)
- ▶ Minimum 5 usages of cartridge

Conditon	MeOH (2 ml)
Wash(equilobration)	Water (2 ml)
Sample loding	100 ml
Wash	Water (2 ml)
Elution	Acetone (1 ml)

## Method requirements

- ▶ Volumes: 100 ml sample volume, 1 ml extract volume
- ▶ Flow rates: washing, elution with 0,2 ml/min, sample loading with 5 ml/min, wash steps, conditioning with 1-2 mL/min
- ▶ Up to 4 different conditioning and wash solvents shall be usable (usually 1<sup>st</sup> MeOH, 2<sup>nd</sup> Water, 3<sup>rd</sup> Hexane, 4<sup>th</sup> Acetone)
- ▶ Backpressures: Loading and equilibration usually 100 bar
- ▶ Dry cartridge with N<sub>2</sub> – 5 min
- ▶ Additional step: Flush tubing with N<sub>2</sub>, or cleaning method with Acetone possible

# CHRONECT® ENVIRON Symbiosis

## Configuration

- ▶ ACE single clamp, 250 bar
- ▶ HPD plus 1 SSM, 12 solvents or samples can be connected
- ▶ Additional: 2x 10-port valves for 20 sample lines, mounted on HPD
- ▶ Symbiosis Extract Collector
- ▶ CHRONOS Symbiosis for Control

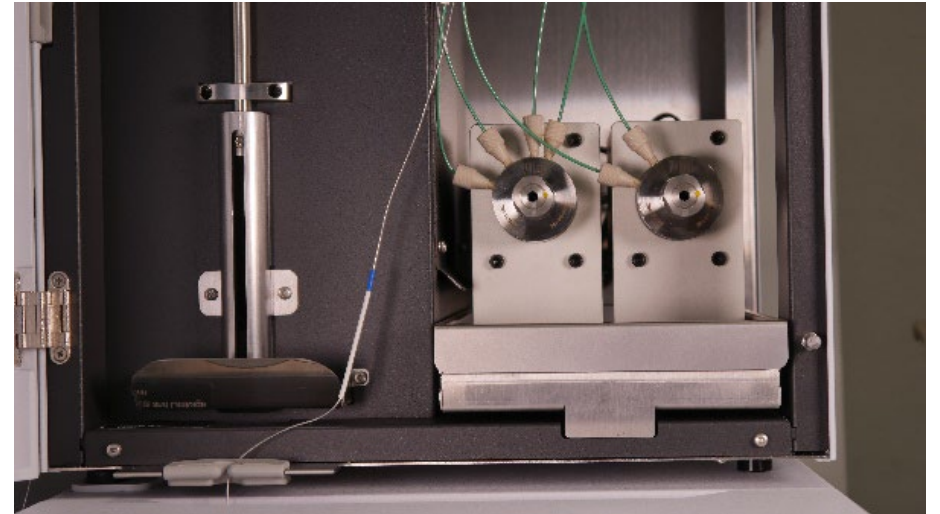


## Placment of 10-port valves

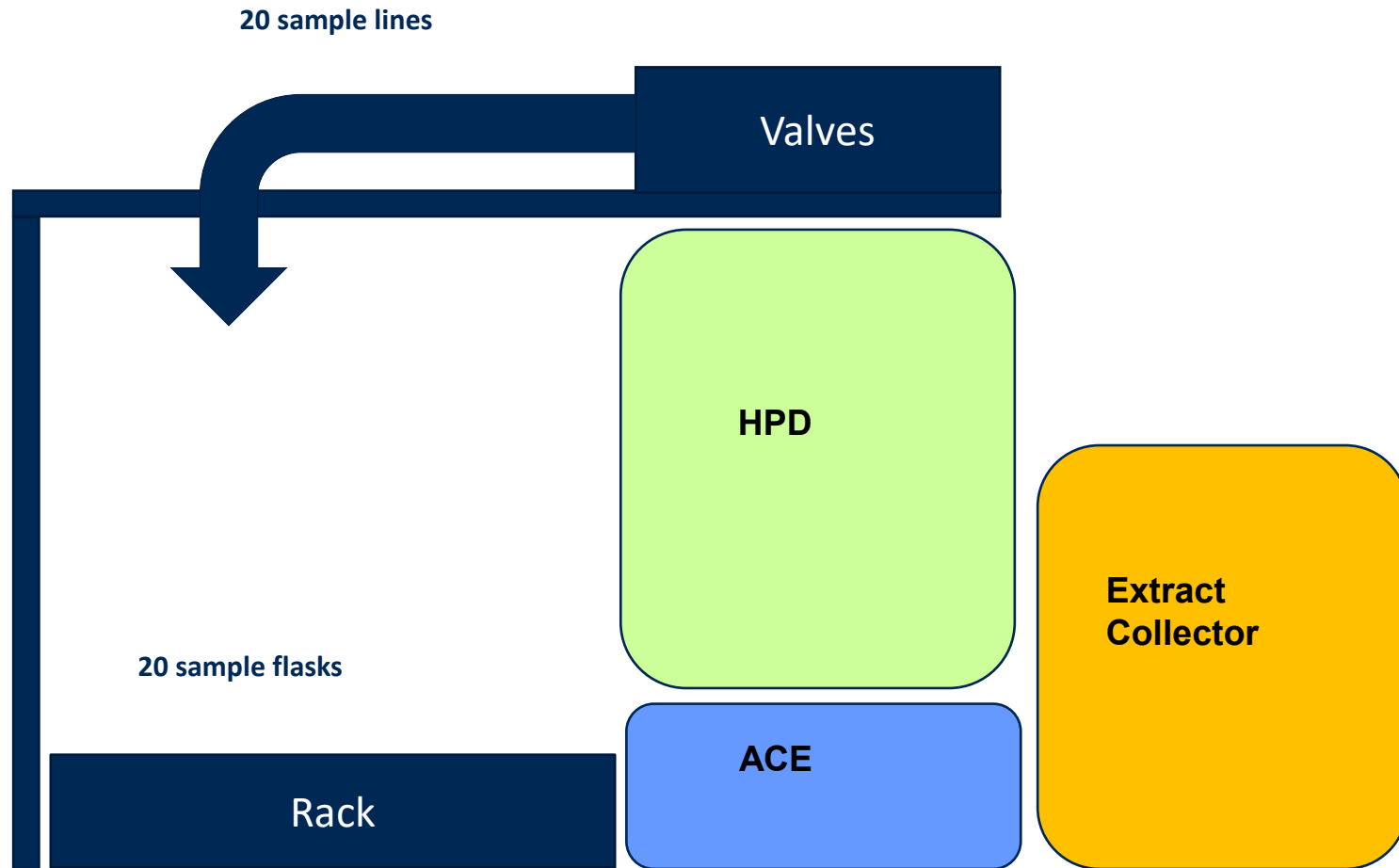
- ▶ Optional in HPD
- ▶ Or on top of HPD



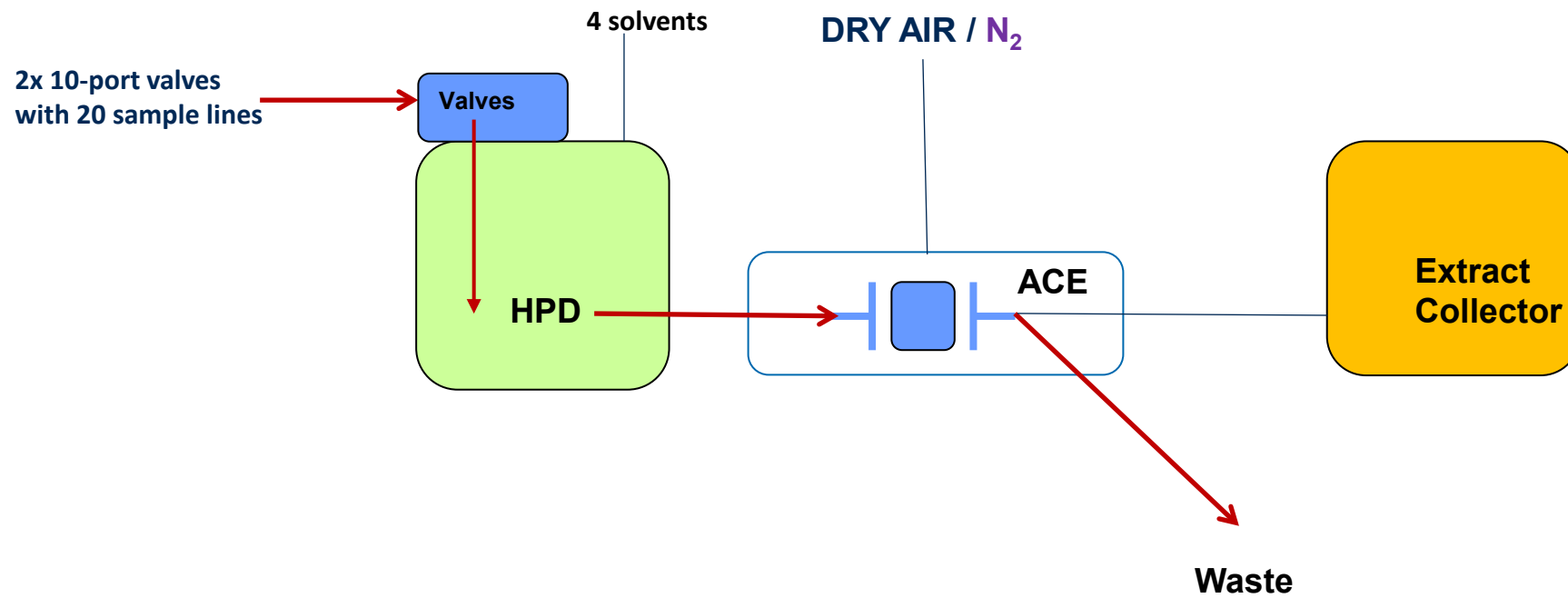
Sample lines from valves to bottles beside.



# Layout

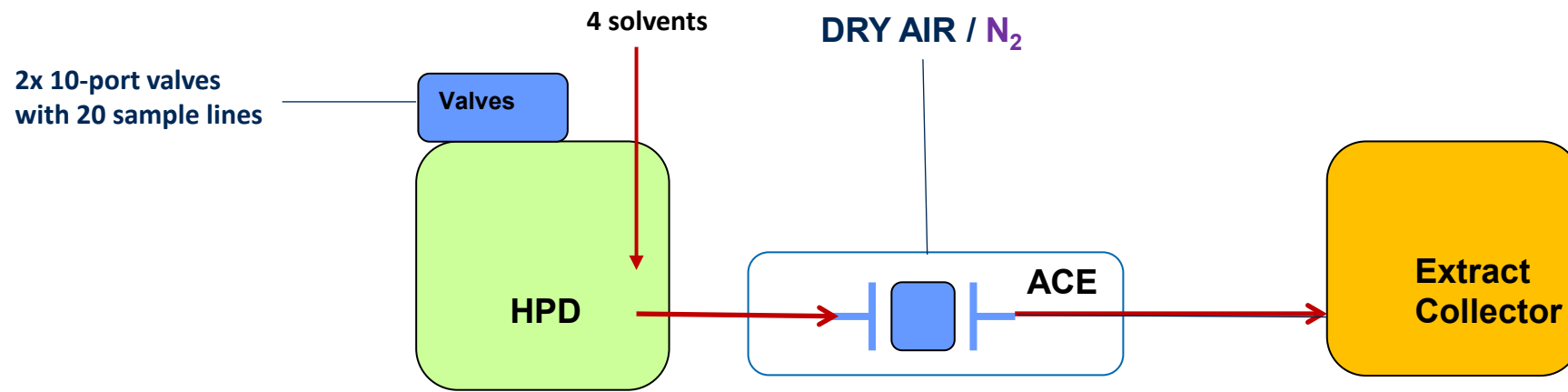


# Sample concentration & clean-up

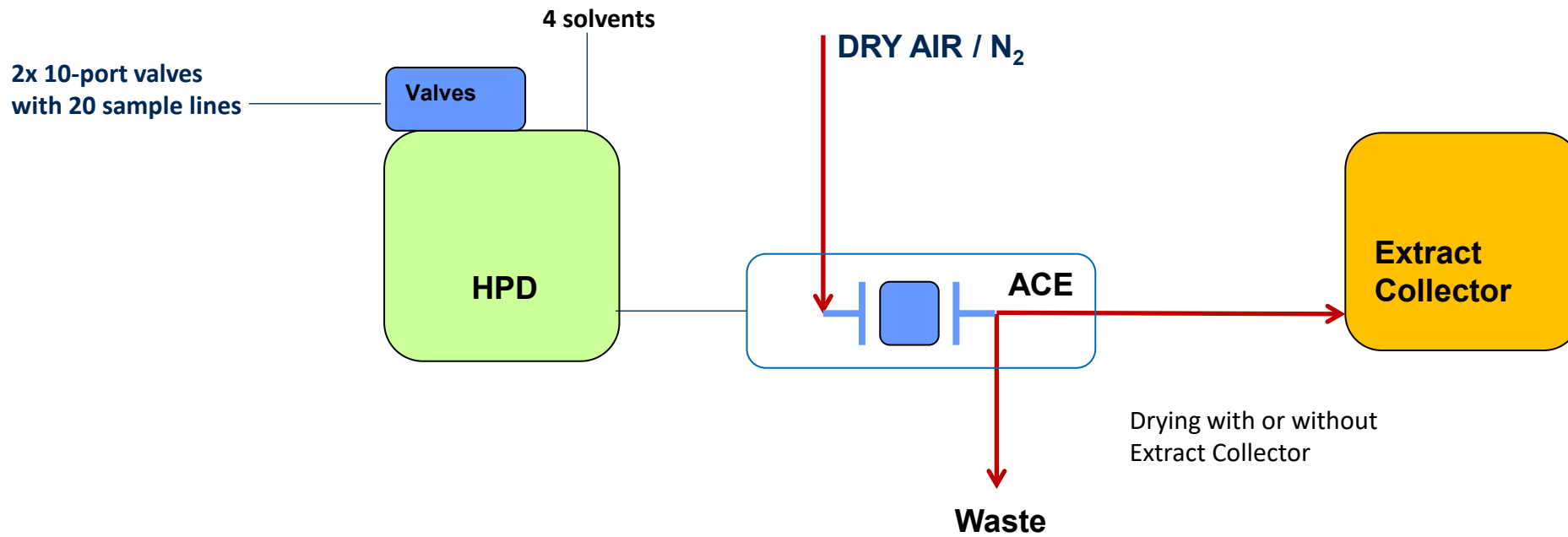




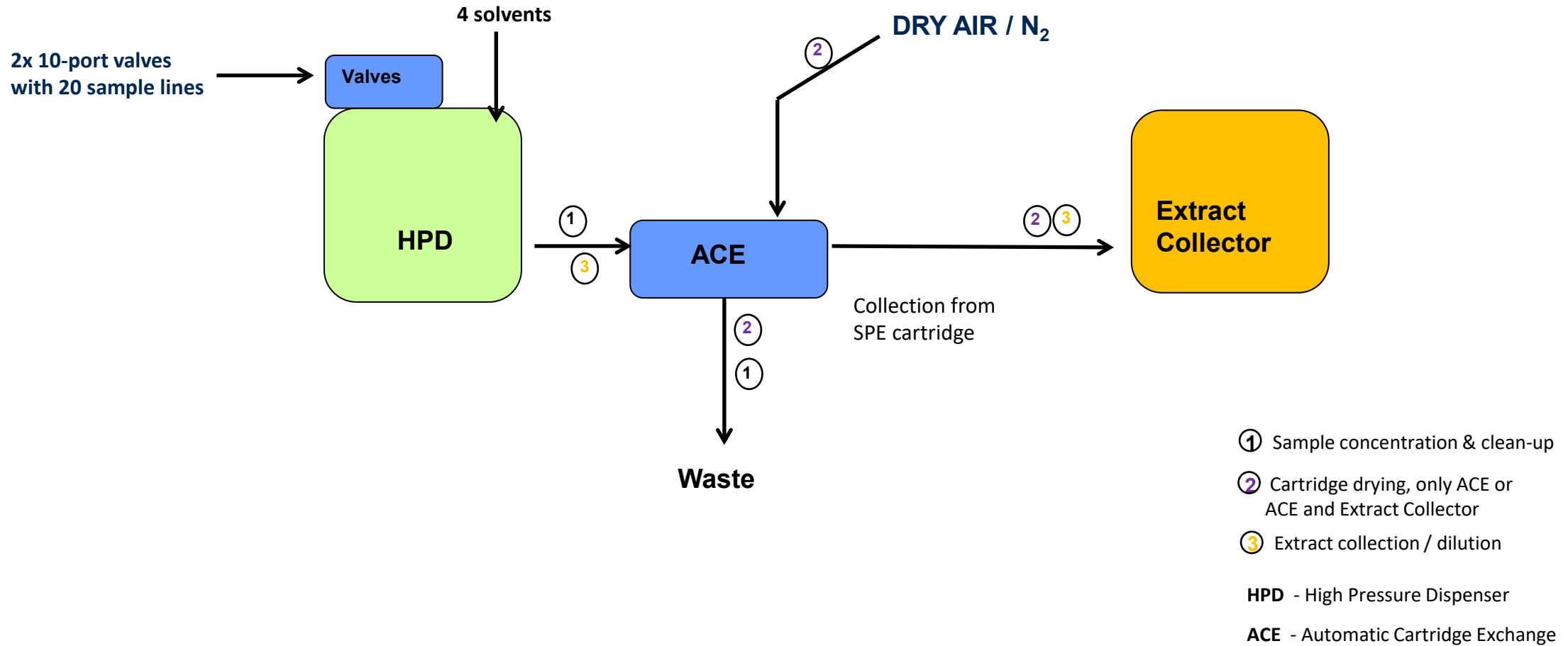
# Extraction



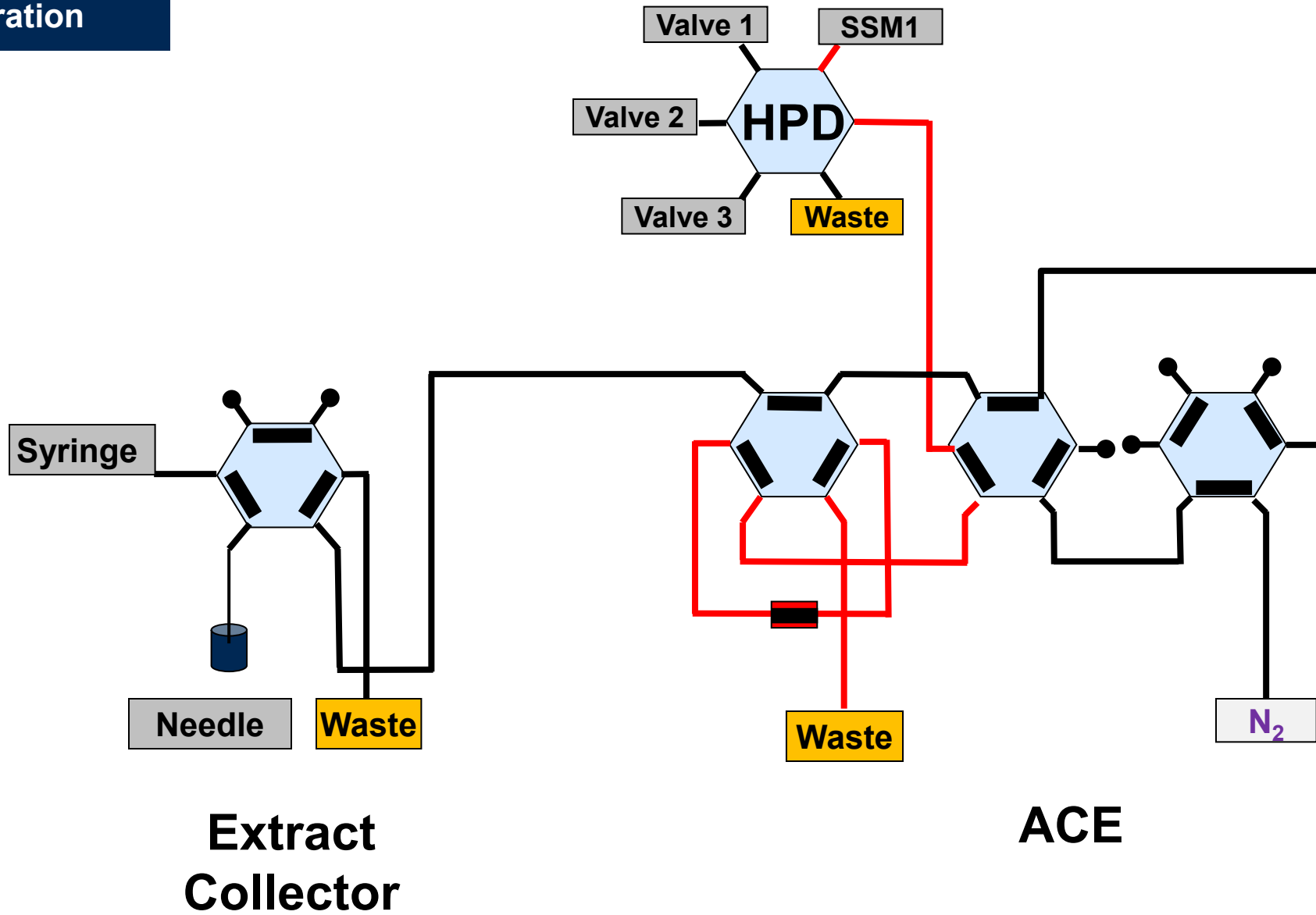
# Drying



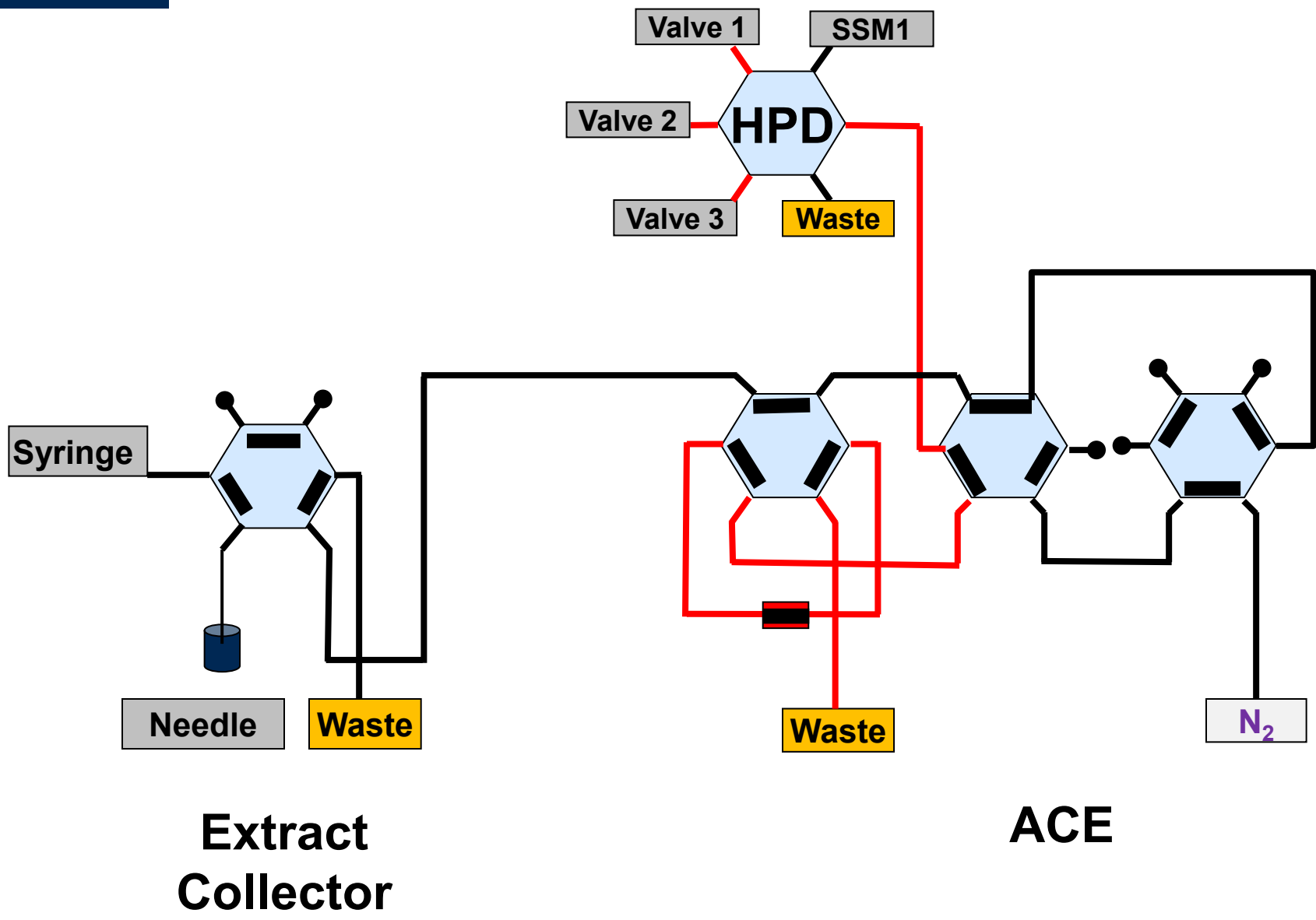
# Schematic of workflows



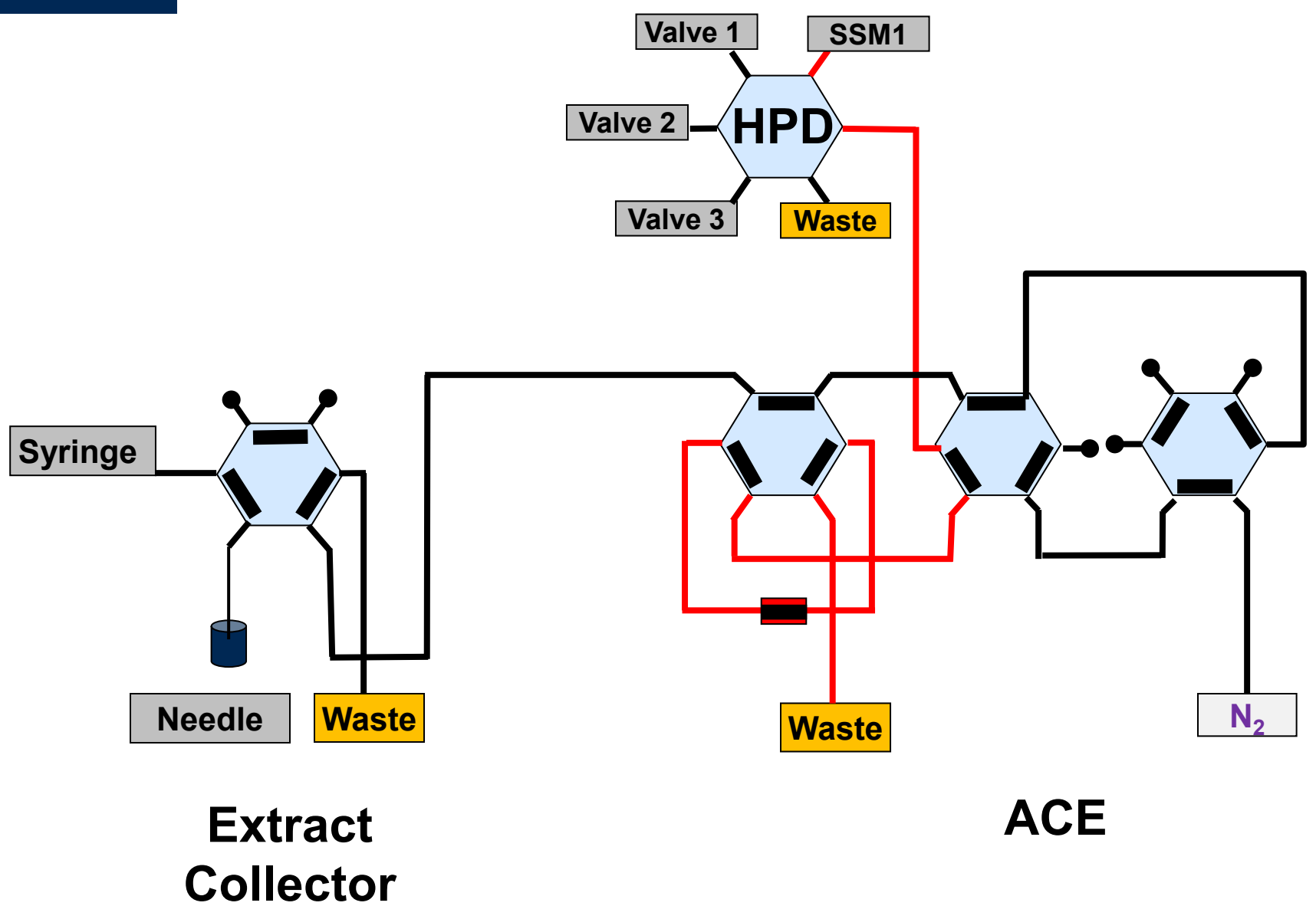
1. Condition
2. Equilibration



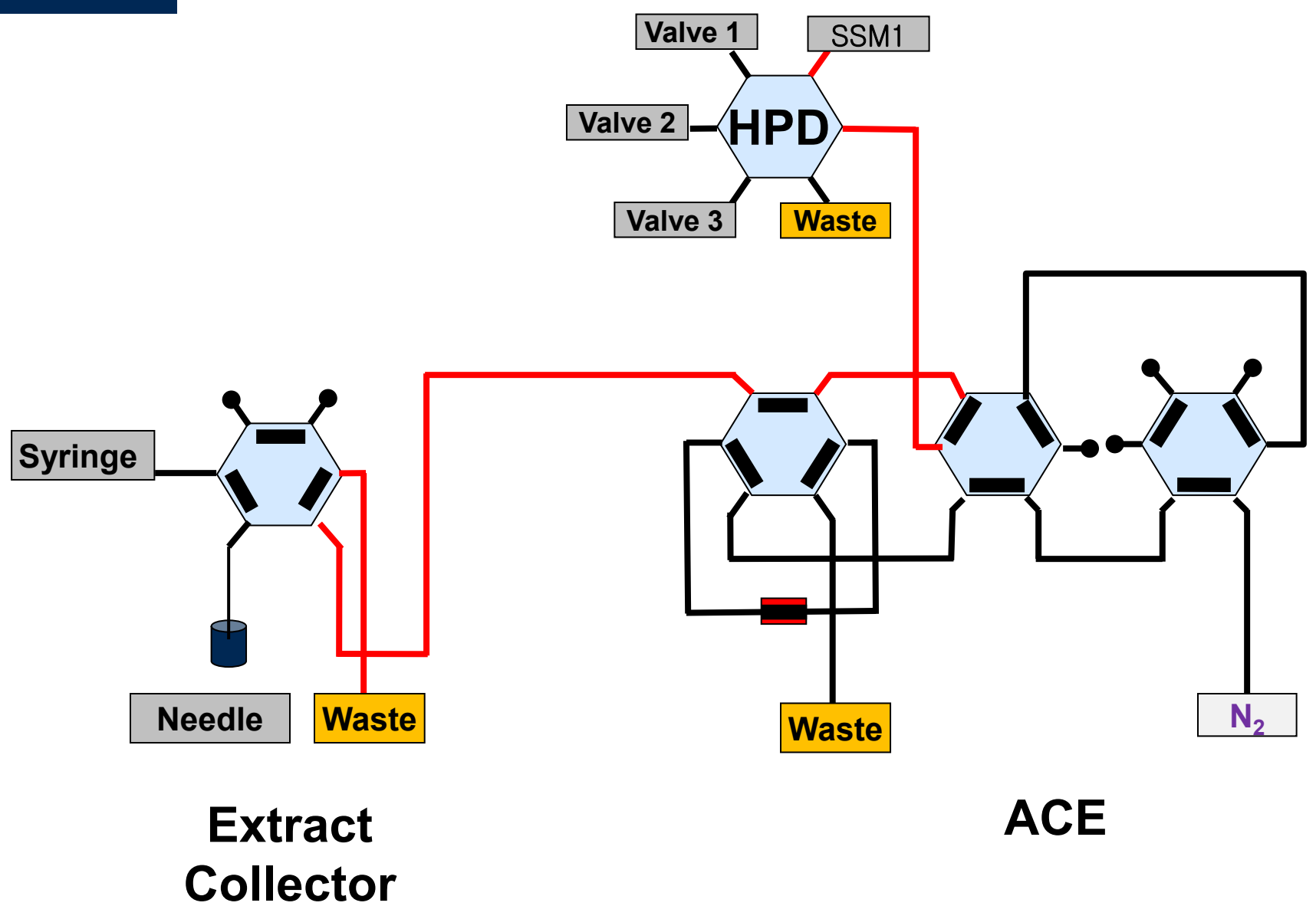
### 3. Sample loading



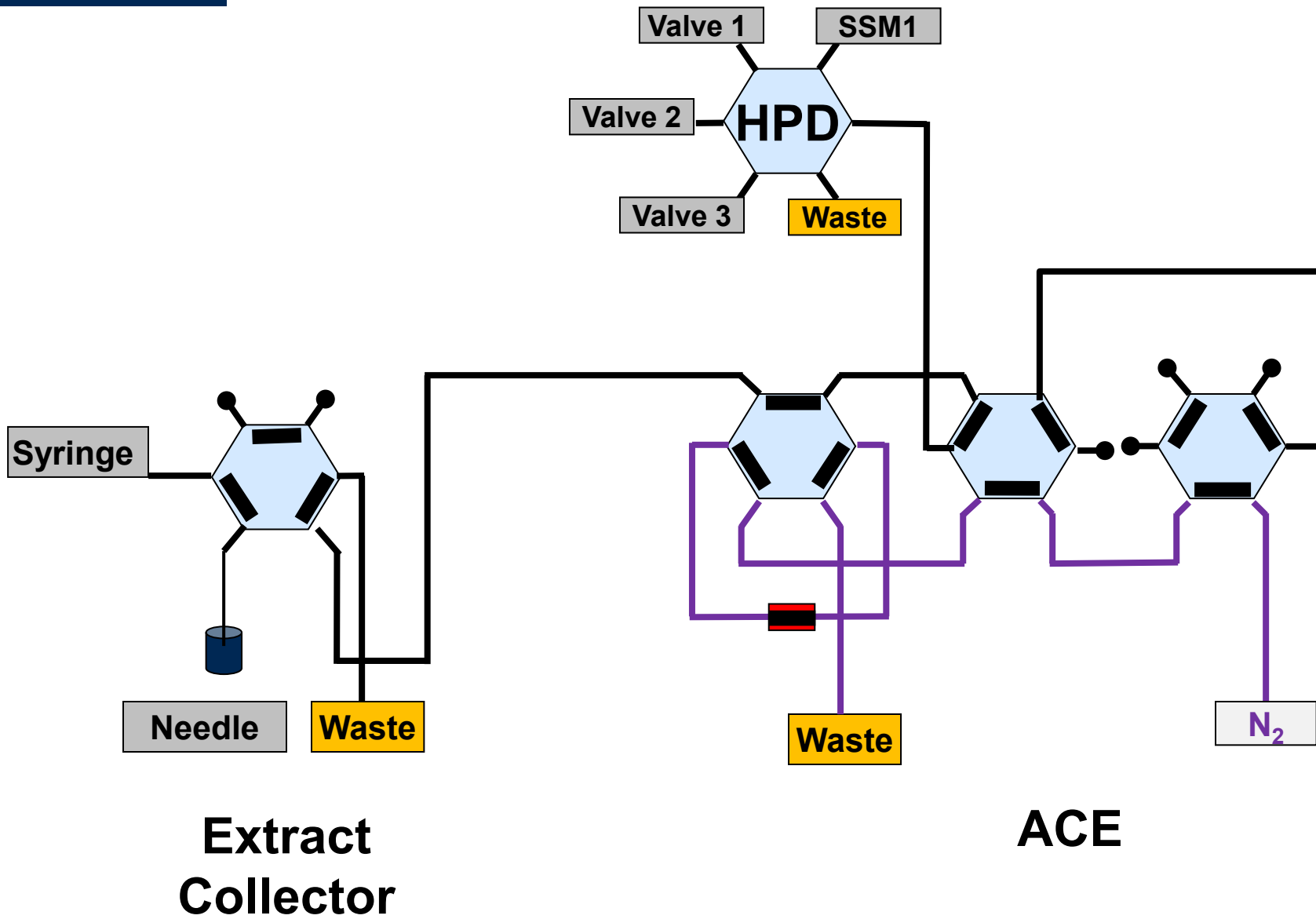
# 4. Washing



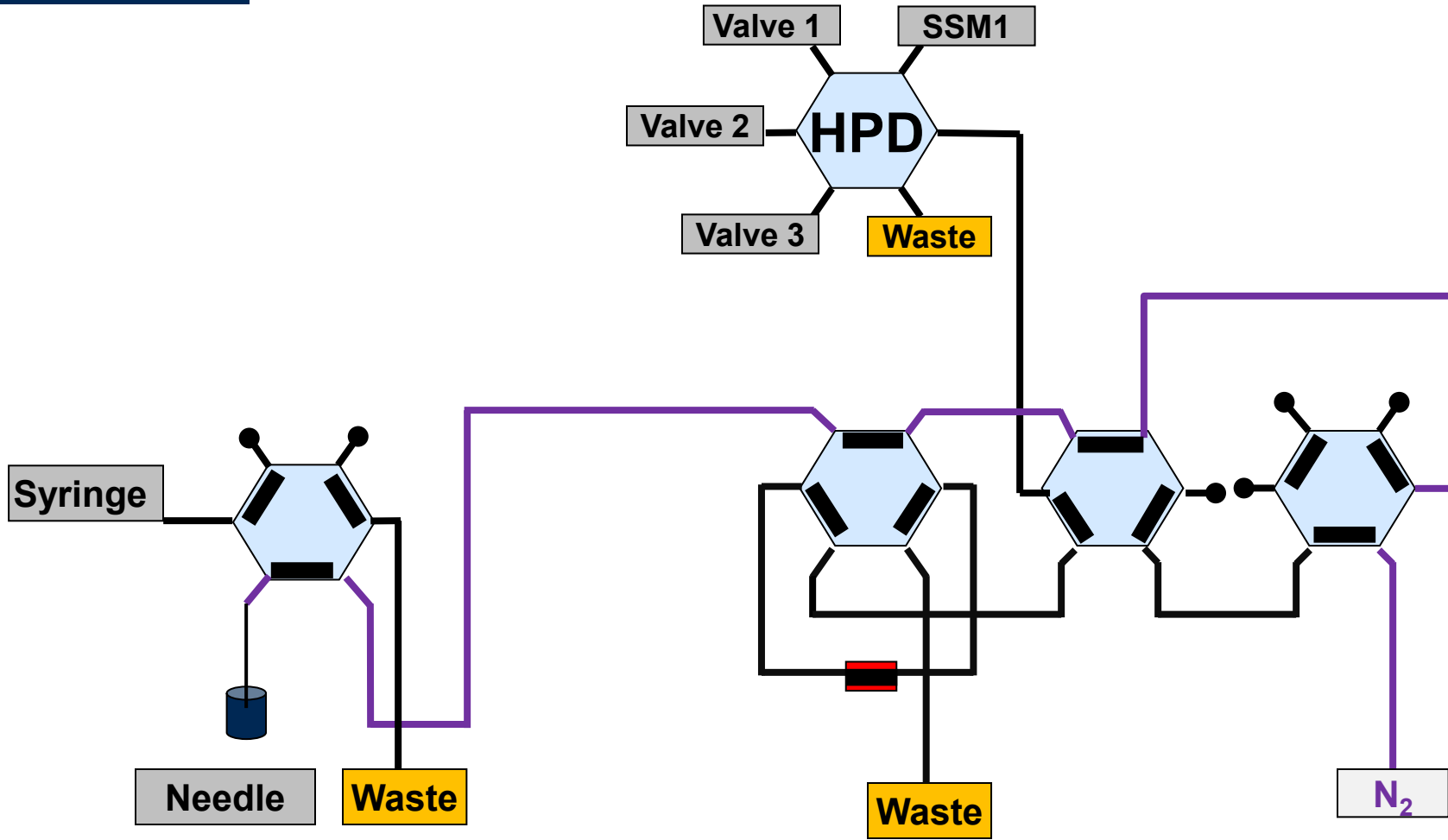
# 5. Tubing clean



## 6. Dry cartridge (N<sub>2</sub> gas)



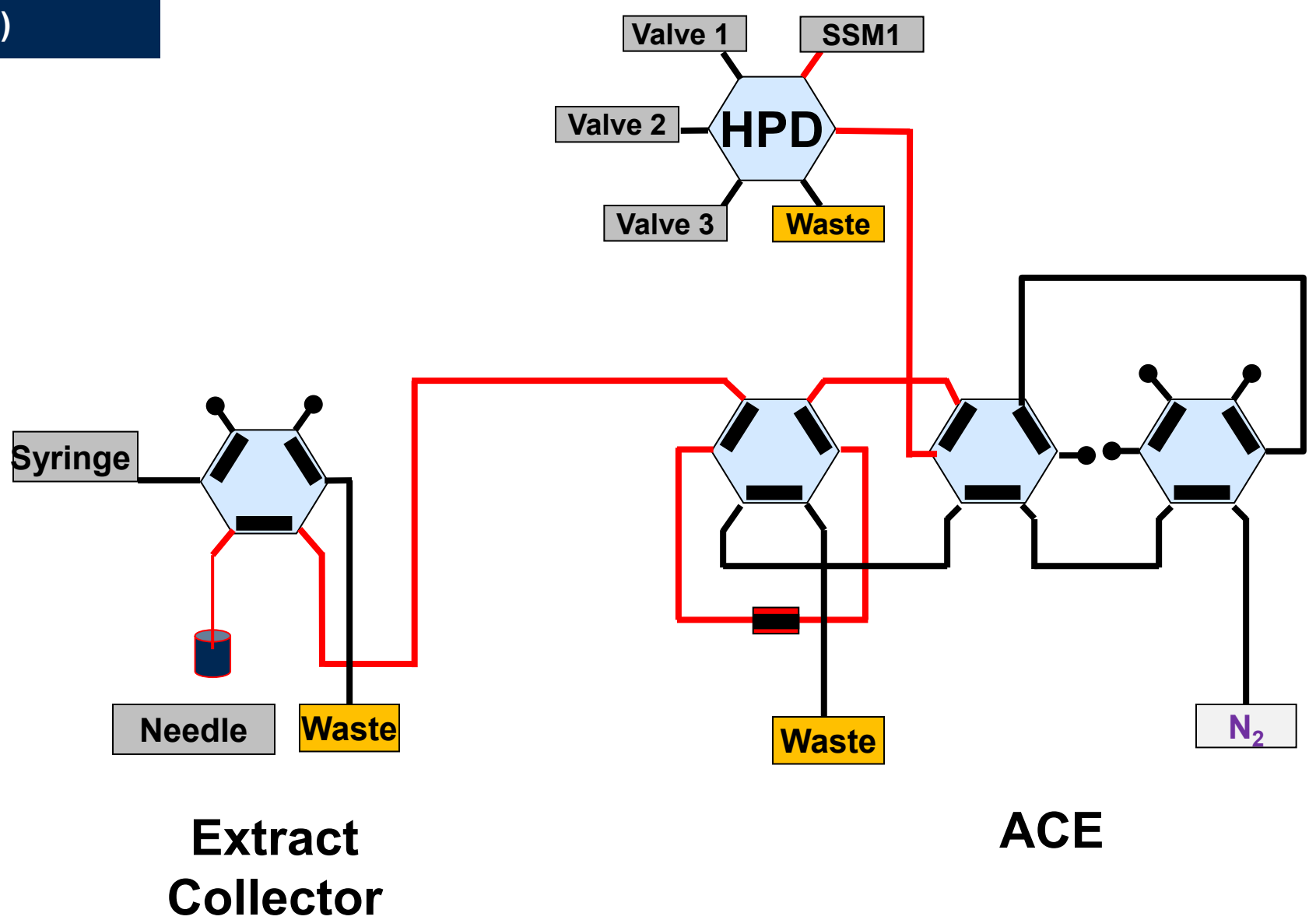




**Extract  
Collector**

**ACE**

# 7. Elution (collection)





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