

University of Regensburg

Organic chemistry (lab course #1)

Name	Place	Assistant
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Preparation/task:

Synthesis of acetylsalicylic acid, C₉H₈O₄

Used substances and products	MW [g/mol]	BP MP	GHS hazard pictograms	H/P phrases	TLV, LD50 WGK	Amount used for batch
Acetic anhydride C ₄ H ₆ O ₃	102.00	140 °C -73 °C	Danger 	H 226-302-314-332 P 280-308+311+333-310	5.00 mg/m ³ WGK 1	17.5 mL 185.6 mmol
Acetic acid 100% C ₂ H ₄ O ₂	60.00	118 °C 16.2 °C	Danger 	H 226-314 P 280-308+311+333-310	10.00 ppm WGK 1	15.0 mL 250.0 mmol
Salicylic acid C ₇ H ₆ O ₃	138.00	211 °C 159.3 °C	Danger 	H 302-318-335-315 P 301-312-331-313+333-310 307-338-311	WGK 1	20.8 g 150.7 mmol
Ethanol C ₂ H ₆ O	46.00	78 °C -114 °C	Danger 	H 225 P 210	700.00 mg/kg WGK 1	100.0 mL 1.7 mol
Acetylsalicylic acid, Aspirin C ₉ H ₈ O ₄	180.00	Decomp. at 136 °C	Danger 	H 301-335-315-319 P 301+310-281-302+303-303 305-351+338	5.00 mg/m ³ WGK 1	

Text of the essential H/P phrases:

H225 Highly flammable liquid and vapour.
H226 Flammable liquid and vapour.
H301 Toxic if swallowed.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.

P210 Keep away from sources of ignition. No smoking.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P302+352 IF ON SKIN: Wash with soap and water.
P305+351+338 IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P352 Wash with soap and water.
P405 Store locked up.

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Additional dangers for humans and environment (e.g. carcinogenic, teratogenic)

- WGK 1: Slightly hazardous to water
- TLV: Threshold Limit Value
- LD50: Median lethal dose

Protective measures and safety rules:

- Acetic anhydride: reacts violently with water. Avoid contact!
- Wear suitable protective clothing, gloves and eyeface protection at all time.
- Firefighting with: Extinguishing powder, carbon dioxide

Behavior in case of danger and first aid:

- In case of skin or eye contact: Thoroughly rinse out with plenty of water and consult a doctor (if necessary).
- In case of inhalation: Immediately expose to fresh air.
- If swallowed: Swallow activated carbon. Drink plenty of water, rinse out the mouth and seek medical advice.

Waste disposal:

- Dispose mother liquor (from product crystallization) into container B2 (halogen-free solvent-water-mixtures).
- Washing water contains mainly diluted acetic acid and diluted sulfuric acid. It can be poured down the drain with running tap water.

I hereby confirm that I will execute the task/preparation according to the here presented safety data instructions.

The student is allowed to perform the presented task/preparation.

Signature of student

Signature of assistant

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