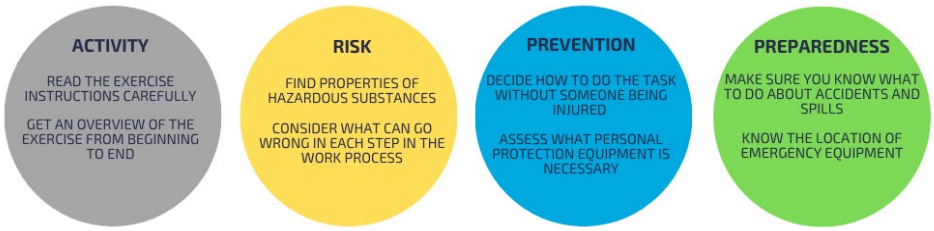
Chemical workplace assessment [Link]



The **STOP** principle

Substitution
Technical precautions
Organisational precautions
Personal protective equipment

Activity:

Period/date: 3/3 - 26

Project Lab Technician: Jesper Gemke

Name(s): Amalie Heltborg

Supervisor:

Approved: _____

1. Reagents/products (conc.) included in the activity:

A: Fava bean starch

B: Pea starch

C: Potato starch

D: Corn starch

Expand with D, E etc. if more.

2. Name and quantity of the substances/materials included in the individual reagents:

Reagent	Total quantity of reagent prepared ([g]/[mL]/[mol])	Compound	Quantity of individual compound used [g/mL/mol]	Substitution (STOP)	CAS No./ P-number
A: Fava bean starch		Fava bean starch			
B: Pea starch		Pea starch			
C: Potato starch		Potato starch			
D: Corn starch		Corn starch			

3. Process description (Analysis/Process: (STOP))

Detailed description/diagram of the work process that includes substances, materials and equipment that can contribute to the risk. Are there points during the procedure with higher risk (e.g. upon heating, mixing, …)?

It is used as a fermentation media and there are no associated risk with using any of the starches

4. Safety in preparing reagents

Find hazard labelling and waste group for the concentrated substances and materials used in preparing reagents.

Substance/product	Hazard pictogram & signal word	H-phrases	P-phrases	Waste group
A: Fava bean stacrh	Non	Non	Non	
B: Pea starch	Non	Non	Non	
C: Potato stach	Non	Non	Non	
D: Corn starch	Non	Non	Non	

5. Prevention and preparedness when handling pure substances while preparing individual reagents/products.

Examine special precautions, personal protective equipment (**STOP**) and other preventive measures as well as emergency preparedness in case of accident/spillage/etc.

Compound/product	Prevention (Special precautions, personal protective equipment, etc.)	Preparedness
A: Fava bean stacrh	**There is no special equipment needed, when handling the product** **Handle in accordance with good industrial hygiene and safety practice:** **- Avoid unnecessary contact with skin and eyes.** **- Avoid inhalation of dust/vapours.** **- Ensure adequate ventilation.** **- Use appropriate personal protective equipment (gloves, safety glasses, lab coat, etc.).** **- Wash hands after handling.** **- Store the substance properly.** **- Dispose of waste appropriately.** **Know where safety equipment is localized** **- Eye washer** **- Emergency shower**	**First response:** **- Inhalation: Remove person to fresh air.** **- Skin: Rinse with water.** **- Eyes: Rinse with eyewash. Remove contact lenses.** **- Ingestion: Rinse mouth and drink water. Do not provoke vomiting.** **Contact emergency personnel in case of fainting or severe health issues** **In case of spillage:** **- Powder: Use vacuum with HEPA filter to vacuum up the spilled powder** **- Liquid: Use sand or cat litter to soak the spillage and vacuum the litter or sand with a vacuum. Otherwise use the spillage blanket for the liquid.**

	- fire hose **- fire extinguisher** **- Cat litter and spillage blanket**	
B: Pea starch	**There is no special equipment needed, when handling the product** **Handle in accordance with good industrial hygiene and safety practice:** **- Avoid unnecessary contact with skin and eyes.** **- Avoid inhalation of dust/vapours.** **- Ensure adequate ventilation.** **- Use appropriate personal protective equipment (gloves, safety glasses, lab coat, etc.).** **- Wash hands after handling.** **- Store the substance properly.** **- Dispose of waste appropriately.** **Know where safety equipment is localized** **- Eye washer** **- Emergency shower** **- fire hose** **- fire extinguisher** **- Cat litter and spillage blanket**	**First response:** **- Inhalation: Remove person to fresh air.** **- Skin: Rinse with water.** **- Eyes: Rinse with eyewash. Remove contact lenses.** **- Ingestion: Rinse mouth and drink water. Do not provoke vomiting.** **Contact emergency personnel in case of fainting or severe health issues** **In case of spillage:** **- Powder: Use vacuum with HEPA filter to vacuum up the spilled powder** **- Liquid: Use sand or cat litter to soak the spillage and vacuum the litter or sand with a vacuum. Otherwise use the spillage blanket for the liquid.**
C: Potato stach	**There is no special equipment needed, when handling the product** **Handle in accordance with good industrial hygiene and safety practice:** **- Avoid unnecessary contact with skin and eyes.** **- Avoid inhalation of dust/vapours.** **- Ensure adequate ventilation.** **- Use appropriate personal protective equipment (gloves, safety glasses, lab coat, etc.).** **- Wash hands after handling.** **- Store the substance properly.** **- Dispose of waste appropriately.** **Know where safety equipment is localized** **- Eye washer** **- Emergency shower** **- fire hose** **- fire extinguisher** **- Cat litter and spillage blanket**	**First response:** **- Inhalation: Remove person to fresh air.** **- Skin: Rinse with water.** **- Eyes: Rinse with eyewash. Remove contact lenses.** **- Ingestion: Rinse mouth and drink water. Do not provoke vomiting.** **Contact emergency personnel in case of fainting or severe health issues** **In case of spillage:** **- Powder: Use vacuum with HEPA filter to vacuum up the spilled powder** **- Liquid: Use sand or cat litter to soak the spillage and vacuum the litter or sand with a vacuum. Otherwise use the spillage blanket for the liquid.**
D: Corn starch	**There is no special equipment needed, when handling the product**	**First response:** **- Inhalation: Remove person to fresh air.**

	Handle in accordance with good industrial hygiene and safety practice: **- Avoid unnecessary contact with skin and eyes.** **- Avoid inhalation of dust/vapours.** **- Ensure adequate ventilation.** **- Use appropriate personal protective equipment (gloves, safety glasses, lab coat, etc.).** **- Wash hands after handling.** **- Store the substance properly.** **- Dispose of waste appropriately.** **Know where safety equipment is localized** **- Eye washer** **- Emergency shower** **- fire hose** **- fire extinguisher** **- Cat litter and spillage blanket**	**- Skin: Rinse with water.** **- Eyes: Rinse with eyewash. Remove contact lenses.** **- Ingestion: Rinse mouth and drink water. Do not provoke vomiting.** **Contact emergency personnel in case of fainting or severe health issues** **In case of spillage:** **- Powder: Use vacuum with HEPA filter to vacuum up the spilled powder** **- Liquid: Use sand or cat litter to soak the spillage and vacuum the litter or sand with a vacuum. Otherwise use the spillage blanket for the liquid.**

6. Safety in handling reagents/products

Calculate the hazard labelling for the reagents (CLP calculator, Kemibrug.dk) and find waste groups (sorting key), special conditions regarding storage are noted. Think about dangers involved in the expected reaction product.

Reagent/product	Hazard pictogram & signal word	H-phrases	P-phrases	Waste group	Storage
A: Fava bean stacrh	Non	Non	Non		In a container
B: Pea starch	Non	Non	Non		In a container
C: Potato stach	Non	Non	Non		In a container
D: Corn starch	Non	Non	Non		In a container

7. Prevention and preparedness when using the individual reagent/products.

Examine special precautions, personal protective equipment (**STOP**) and other preventive measures as well as emergency preparedness in case of accident/spillage/etc. Consider, whether the required protective equipment is the same throughout the whole experiment or whether it can vary, e.g. depending on temperature.

Reagent/product	Prevention (Special precautions, personal protective equipment, etc.)	Preparedness
A: Fava bean stacrh	**There is no special equipment needed, when handling the product** **Handle in accordance with good industrial hygiene and safety practice:** **- Avoid unnecessary contact with skin and eyes.** **- Avoid inhalation of dust/vapours.** **- Ensure adequate ventilation.** **- Use appropriate personal protective equipment (gloves, safety glasses, lab coat, etc.).** **- Wash hands after handling.** **- Store the substance properly.** **- Dispose of waste appropriately.** **Know where safety equipment is localized** **- Eye washer** **- Emergency shower** **- fire hose** **- fire extinguisher** **- Cat litter and spillage blanket**	**First response:** **- Inhalation: Remove person to fresh air.** **- Skin: Rinse with water.** **- Eyes: Rinse with eyewash. Remove contact lenses.** **- Ingestion: Rinse mouth and drink water. Do not provoke vomiting.** **Contact emergency personnel in case of fainting or severe health issues** **In case of spillage:** **- Powder: Use vacuum with HEPA filter to vacuum up the spilled powder** **- Liquid: Use sand or cat litter to soak the spillage and vacuum the litter or sand with a vacuum. Otherwise use the spillage blanket for the liquid.**
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	- fire extinguisher **- Cat litter and spillage blanket**	
C: Potato stach	**There is no special equipment needed, when handling the product** **Handle in accordance with good industrial hygiene and safety practice:** **- Avoid unnecessary contact with skin and eyes.** **- Avoid inhalation of dust/vapours.** **- Ensure adequate ventilation.** **- Use appropriate personal protective equipment (gloves, safety glasses, lab coat, etc.).** **- Wash hands after handling.** **- Store the substance properly.** **- Dispose of waste appropriately.** **Know where safety equipment is localized** **- Eye washer** **- Emergency shower** **- fire hose** **- fire extinguisher** **- Cat litter and spillage blanket**	**First response:** **- Inhalation: Remove person to fresh air.** **- Skin: Rinse with water.** **- Eyes: Rinse with eyewash. Remove contact lenses.** **- Ingestion: Rinse mouth and drink water. Do not provoke vomiting.** **Contact emergency personnel in case of fainting or severe health issues** **In case of spillage:** **- Powder: Use vacuum with HEPA filter to vacuum up the spilled powder** **- Liquid: Use sand or cat litter to soak the spillage and vacuum the litter or sand with a vacuum. Otherwise use the spillage blanket for the liquid.**
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8. Special risks for pregnant and breastfeeding women?

(Mandatory, if any of the following H-phrases occurs for any involved step: H350 +H351, H340 + H341, H360 + H361 + H362, H310+H311+H312, H370+H371+H372 +H373). Also mandatory, if a person involved in the work is pregnant or breast-feeding.

Is the work process/area safe for pregnant or breastfeeding women? Consider all the steps involved, including the surroundings and physical hazards like ultrasound, noise, etc.

☐Yes ☒ No

Reasons:

9. Proposals for improving safety other than substitution (facultative)

What can be done to minimize the risks involved in this experiments?