

COSHH Risk Assessment

Newcastle University OHSS: H&S Form 401.1a

This form should be completed electronically and signed by the Principal Investigator or responsible person. Guidance on completing this form is provided in the [COSHH Risk Assessment section of the OHSS website](#).








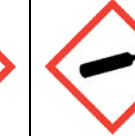
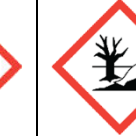
Section 1: Project Details

1.1. Title of project or activity	Working with Ethane for cryo prep on grids		
1.2. Principal investigator/responsible person	Arnaud Basle Various trained and competent researchers from cryo groups		
1.3. School/Institute/Service	EMRS		
1.4. Location of work building and room numbers	M3.036B		
1.5. Brief description of work activity	<p>Dispensing Ethane from a small cylinder to fill a 10 mp cup for plunging grids for cryo prep. Using the Leica plunge</p> <p>Ethane - Safety Issue. Ethane is a volatile gas. As such it should only be used in a well ventilated area such as a fume hood and away from any flames.</p> <p>Because liquid ethane has a high heat capacity, it is dangerous to use unprotected. While direct skin contact with small amounts of liquid nitrogen will produce a mild sting, the gas quickly heats up and boils off before much damage occurs. On the other hand, ethane can absorb much more heat before transitioning into the gas phase. Therefore, it will burn skin on contact. General use precautions should include a lab coat, safety glasses, and gloves.</p>		
1.6. Date of assessment	27/03/2026	1.7. Revision date*	27/03/2028

Section 2: Emergency Quick Reference

The purpose of this section is to provide easy access to emergency information. A full assessment of risk will be provided in the next sections and

2.1. Emergency contacts One of these should be the PI/responsible person Security can be contacted on extension 6666	Name:	Dr. Arnaud Basle	Dr. Johan Panek
	Position:	Facility Manager	Scientific officer
	Telephone number:	07528960883	

2.2. Hazard pictograms – select all that apply to the work activity.								
 Health hazard	 Toxic	 Corrosive	 Harmful/ Irritant	 Flammable	 Oxidising	 Explosive	 Compressed gas	 Danger for the environment
				X			X	

2.3. Name of hazard	2.4. Properties of hazard Briefly describe how the chemical is hazardous e.g. toxic, flammable, carcinogen	2.5. Emergency procedures
ETHANE 74 84-0	HIGHLY FLAMMABLE	<p>Include, as appropriate, procedures for:</p> <ul style="list-style-type: none"> ● Contained Spill ● Small uncontained spill, ● Large uncontained spill ● First aid ● Fire <p>Inhalation: In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. The victim may not be aware of asphyxiation. Remove victims to an uncontaminated area wearing self contained breathing apparatus. Keep the victim warm and rested. Call a doctor. Apply artificial respiration if breathing stops.</p> <p>Eye contact: Rinse the eye with water immediately. Remove contact lenses, if present and easy to do. Continue rinsing. Flush thoroughly with water for at least 15 minutes. Get immediate medical assistance. If medical assistance is not immediately available, flush an additional 15 minutes.</p> <p>Skin Contact: Contact with evaporating liquid may cause frostbite or freezing of skin. In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Get medical attention.</p> <p>Hazards: Respiratory arrest. Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling. Treatment: Thaw frosted parts with lukewarm water. Do not rub the affected area. Get immediate medical advice/attention.</p>
ETHANE	FIRE HAZARD	<p>General Fire Hazards: Heat may cause the containers to explode.</p> <p>Suitable extinguishing media: Water Spray or Fog Dry powder. Foam.</p> <p>Unsuitable extinguishing media: Carbon dioxide.</p> <p>Special hazards arising from the substance or mixture: Incomplete combustion may form carbon monoxide.</p> <p>Special fire fighting procedures: In case of fire: Stop leak if safe to do so. Do not extinguish flames at leak because possibility of uncontrolled explosive re-ignition exists. Continue water spray from a protected position until the container stays cool. Use extinguishers to contain the fire. Isolate the source of the fire or let it burn out.</p>

Section 3: The Risk Assessment

Additional rows can be added to this table as required

3.1. Name of hazard including substances and by-products produced during or as a result of the activity.	3.2. Properties of hazard Provide details of how the substance could cause harm. Useful sources of information are the safety data sheet for the substance, Hazard (H) statements (give the whole phrase not just the code), and the workplace exposure limit.	3.3. Physical form e.g. powder, dust, granular, pellet, liquid, solution, gas.	3.4. Quantity and concentration (give units)	3.5. Frequency of use e.g. daily, weekly, monthly, one-off.	3.6. Route of exposure e.g. ingestion, inhalation, skin/eye contact, skin absorption, injection/sharps injury.
ETHANE 74- 84-0	<p>P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.</p> <p>P377: Leaking gas fire: Do not extinguish, unless leak can be stopped safely.</p> <p>P381: In case of leakage, eliminate all ignition sources.</p> <p>P403: Store in a well-ventilated place.</p> <p>Other hazards Contact with evaporating liquid may cause frostbite or freezing of skin</p>	LIQUID	10ML		SKIN CONTACT
ETHANE GAS	<p>General: In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. The victim may not be aware of asphyxiation. Remove victims to uncontaminated areas wearing self contained breathing apparatus. Keep the victim warm and rested. Call a doctor. Apply artificial respiration if breathing stops.</p>	GAS			

3.7 Carcinogens All carcinogens and users of carcinogens should be notified to OHSS [here](#)

3.8. Dangerous Substances and Explosive Atmospheres (DSEAR)	Yes	No
Are you carrying out an activity/chemical reaction that is at risk of thermal runaway or explosion?		NO
Will the activity involve handling or storage of pyrophoric or unstable substances such as peroxide?		NO
Will flammable vapours, solid particles, fibrous particles etc. capable of forming an explosive atmosphere be present in the working atmosphere?		NO

If the answer to any of the above questions is yes, you will need to complete a short 'add-on' [DSEAR risk assessment](#)

3.9. Who might be at risk? (tick all that apply)	Staff	Postgraduates	Undergraduates	New or expectant mothers (Contact Occupational Health)	Contractors	Public including visitors and children
	X	X				

3.10. Assessment of inherent risk to human health prior to the use of controls (please use the risk assessment matrix at the end of this form)	High	Medium	Medium/low	Low
				X

Section 4: Controls

Specify for each hazard identified in section 3. Precautionary (P) statements are a useful source of information.	
4.1. Physical or Engineering Controls. LEV, fume hood, glove box, total containment etc. Specify at which point in the work activity they are to be used.	KEEP DOOR OPEN WHEN DISPENSING THE LIQUID. GLOVES, EYE SHIELDS WILL BE AVAILABLE. LAB COAT TO BE WORN
4.2. Administrative controls Training requirements, access control, signage.	ALL USERS TRAINING BY INSTITUTE CRYOGENIC COURSE. LOCAL TRAINING CARRIED OUT BY EXPERIENCED USER
4.3 Personal Protective Equipment. Respirators, safety specs, face mask, lab coat, gloves etc. Specify which type and when they are to be worn.	SAFETY SPECS, GLOVES AND LAB COAT
4.4. Storage requirements Include a description of how hazardous substances including flammable materials will be stored. Describe how incompatible materials will be segregated.	SMALL VESSEL HELD IN PLACE ON TABLE LEG FOR STABILITY. ALWAYS PURCHASE SMALL CONTAINERS.
4.5. Transport of the hazardous substance Describe how you will transport substances between laboratories or different university sites.	
4.6. Disposal procedures Carefully consider the safest means of disposal and identify when waste should be disposed of by a chemical waste contractor	

	Yes	No	Describe the findings of exposure monitoring or health surveillance
4.7. Is exposure monitoring required? For example if you suspect that exposure to a chemical exceeds the workplace exposure limit. Contact OHSS for further advice		NO	
4.8. Is health surveillance required? See Occupational Health surveillance policy and programme. Contact Occupational Health for further advice		NO	

4.9. Assessment of residual risk to human health after the application of controls (please use the risk assessment matrix at the end of this form)	High	Medium	Medium/low	Low
			X	

Section 5: Approval

I confirm that this is a suitable and sufficient risk assessment for the above described work activity	Name	Signature	Date
Assessor This is the person who has completed this form	Dr. Johan Panek	Johan Panek	27/03/2026
Principal Investigator/responsible person	Dr Arnaud Basle	Arnaud Basle	

Risk estimation matrix Use this to complete sections 2.10 and 3.10

Severity of Harm	Likelihood of harm		
	High	Medium	Low
Severe	High	High	Medium
Moderate	High	Medium	Medium/low
Minor	Medium/low	Low	Low

Please keep a record of this risk assessment

*Review of assessment

This assessment should be reviewed every 2 years and immediately if there is reason to believe that it is no longer valid (e.g. after an accident/incident), if there is a significant change in the work activity to which it relates or if the results of monitoring or health surveillance indicate it to be necessary.