

# Laboratory CoSHH Proforma (Incorporating DSEAR)


	<b>Title: A-CINCH Science Fair Lab-in-a-Box Structural Energy Experiment</b>	
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<b>Brief Description of Project or Activity:</b>	<p>The experiment being carried out is a science fair activity, that is expected to explain about radiation and how a TLD works.</p> <p>The experiment will consist of heating irradiated salt in an aluminium container on a hot plate.</p> <p>Procedure:</p> <ol style="list-style-type: none"> <li>1. Turn on the hot plate to a medium-high setting beforehand so that it will be hot at the time of the demonstration.</li> <li>2. Show a sample of the irradiated table salt, which is orange-brown in colour.</li> <li>3. Sprinkle the irradiated salt sample on an aluminium boat. Place the boat on the hot surface of the hot plate.</li> <li>4. Place a Pyrex screen in front of the hot plate. Have the students observe the luminescence.</li> <li>4. Remove the salt sample from the heat and note the colour, which is now white.</li> </ol>	<b>Work Location:</b>	
		<b>Off-site</b>	

***Important Note: Any fundamental change in the process or a change in the work location will necessitate a review of this CoSHH Assessment.***

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## 1. Summary of the Substance(s) to be Used / Generated with the Maximum Quantities Assessed:

Substance(s) (Used or Generated)	Quantity (Delete as Appropriate)	Frequency of Use & How Long	CLP Classification 	Special Storage Requirements During Use	Significant Hazards (From Risk Phrases)	Precautions
<p><b>Sodium chloride</b> (NaCl) that has been irradiated with at least 180,000 rads gamma radiation.</p> <p>Synonyms: Irradiated salt</p> <p>Physical properties: Orange-brown crystalline powder. Odourless. Soluble: Water. Slightly in alcohol. Boiling point: 1413 °C Melting point: 801 °C</p> <p>Irradiated sodium chloride is not radioactive.</p>	<p>Low &lt;200g</p>	<p>Used frequently for multiple runs of the same experiment over the course of a day.</p>	<p><b>Warning</b></p>	<p>Light sensitive and somewhat hygroscopic. Store in a tightly closed amber or opaque bottle in a cool, dry place away from light.</p> <p>Reacts violently with bromine trifluoride and lithium. Avoid contact with strong oxidizers, acids, bromine.</p> <p>Irradiated sodium chloride will release light energy and fall back to its ground state when heated.</p>	<p>Hazard class: Acute toxicity, oral (Category 5). May be harmful if swallowed (H303).</p> <p>Hazard class: Skin corrosion/irritation (Category 3). Causes mild skin irritation (H316).</p> <p>Product should be treated as a chemical and is not for consumption as it has been stored with other non-food-grade chemicals.</p>	<p>Wear protective gloves, and eye protection. Wash hands thoroughly after handling.</p>

**2. WORKING EXPOSURE LIMIT'S? (see current copy of EH40 or CoSHH Co-ordinator for guidance)**

Are any Working Exposure Limits identified for the substance(s)?

**NO**

N/A
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**3. DANGEROUS SUBSTANCES AND EXPLOSIVE ATMOSPHERE (DSEAR) HAZARDS**Have any dangerous substances as defined by DSEAR 2002 (IMS\_P\_329 'Control of Dangerous Substances and Explosive Atmosphere Hazards') been identified? **NO**

Dangerous Substance	Control Measure(s)
N/A	N/A

Are the proposed control measures adequate?

**YES****4. CURRENT CONTROL MEASURES (Ventilation, PPE, Health Surveillance, Housekeeping, Storage etc.)**

<b>Hardware</b>	<p><b>Manipulation of reagents should be undertaken wearing glasses, and disposable nitrile rubber gloves (EN 374-3). Wash hands thoroughly after handling.</b></p> <p><b>A Pyrex screen will be used to prevent students from being able to handle the chemicals and equipment.</b></p> <p><b>Irradiated salt is not radioactive nor is it more hazardous than normal table salt. However, it should be treated as a laboratory chemical and not consumed.</b></p> <p><b>To avoid burns, a HOT sign next to the hot plate before the Demonstration and also afterwards to warn students and other demonstrators that the hot plate is hot.</b></p>
<b>Procedural</b>	<p><b>Good housekeeping as well as proper labelling of chemicals is to be maintained. The material will be stored above children's reach when at home address.</b></p> <p><b>Demonstrator will be aware of emergency procedures:</b>  <b>Call for medical assistance if you feel unwell.</b>  <b>If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing.</b>  <b>If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue rinsing.</b>  <b>If skin irritation occurs: Get medical advice or attention.</b>  <b>If swallowed: Rinse mouth. Call for medical assistance if you feel unwell.</b></p>

**5. FURTHER IMPORTANT CONSIDERATIONS**

Please state any actions required and define the responsible person.

Can any of the substances be **eliminated** or **replaced** by less hazardous substitutes?  
(If YES provide details)

**NO**

Could any additional hazards arise from doing the work?  
(e.g. mixing of the reagents or from reaction by-products)  
If YES provide details

**NO**

Are there any considerations arising from historic or ongoing activities?  
(e.g. chemical residues, nearby operations)  
If YES provide details

**NO**

Are any further control measures necessary?  
(If YES provide details)

**NO**

Is there a requirement for inspection or examination of the control measures?  
(If YES provide details)

**NO**

Is there a requirement for additional health surveillance (Occupational Hygiene involvement etc)  
(If YES Provide details)

**NO**

## 6. SPILLAGE & DISPOSAL PROCEDURES

**Spillage** – Prevent further leakage or spillage if safe to do so. Contain spillage. Keep in suitable, closed containers for disposal. Wash spill site after material pickup is complete.

**Disposal** – The salt may be flushed down the drain with water.

<b>Print Name</b>	<b>Signature</b>	<b>Date</b>