

## I. ENVIRONMENTAL IMPACT AND RISK MITIGATION

Risks	Project Specific Risk	Potential Impact	Mitigation Steps
Air Pollution	<ul style="list-style-type: none"> <li>Emissions from air handling unit</li> <li>Solvent vapours</li> </ul>	<ul style="list-style-type: none"> <li>Exposure of AHU emissions to local environment</li> <li>Exposure of solvent vapours to workers</li> </ul>	<ul style="list-style-type: none"> <li>Anticipated emissions will be well below CPCB standards</li> <li>Limited use of air conditioning as per requirement basis</li> <li>Use of appropriate equipment while handling solvent to control evaporation rate</li> <li>Use of safety masks during the handling of solvents</li> </ul>
Water Pollution and Waste water treatment	<ul style="list-style-type: none"> <li>Effluent coming through washing of glassware</li> </ul>	<ul style="list-style-type: none"> <li>Mixing of water containing soap solution into surface water stream, sewage line</li> </ul>	<ul style="list-style-type: none"> <li>Anticipated effluents will be well below CPCB standards</li> </ul>
Chemical waste	<ul style="list-style-type: none"> <li>Halogenated waste</li> <li>Non halogenated waste</li> </ul>	<ul style="list-style-type: none"> <li>Over-exposure leading to headache, sleepiness</li> <li>Spillage leading to soil and water contamination</li> </ul>	<ul style="list-style-type: none"> <li>Storage in separate containers as per internal guidelines within well ventilated area</li> <li>Association with laboratory chemical waste management service providers for disposal of solvents</li> <li>Waste minimisation plan</li> </ul>
Biological Waste	<ul style="list-style-type: none"> <li>No biological waste will be produced during the project</li> </ul>	Not applicable	Not applicable
Heavy metals	<ul style="list-style-type: none"> <li>Proposed solvents, raw materials may be the source of heavy metals</li> </ul>	<ul style="list-style-type: none"> <li>Mixing of samples containing heavy metal with soil and water</li> </ul>	<ul style="list-style-type: none"> <li>Solvents, raw materials contain negligible to none amount of heavy metals as compared with permissible standards</li> <li>Further mitigation plan will not be required</li> </ul>
Radiation Waste	<ul style="list-style-type: none"> <li>No radioactive waste will be generated during the project</li> </ul>	Not applicable	Not applicable
Destruction/alteration of surrounding ecosystem	<ul style="list-style-type: none"> <li>There will be no destruction/alteration of</li> </ul>	Not applicable	Not applicable

	surrounding ecosystem		
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## II. OCCUPATIONAL HEALTH AND SAFETY AND RISK MITIGATION

Risks	Project Specific Risk	Potential Impact	Mitigation Steps
Heat Hazards	<ul style="list-style-type: none"> <li>▪ Reactions at higher temperature</li> <li>▪ Solvent distillation processes</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reactor overheating</li> </ul>	<ul style="list-style-type: none"> <li>▪ Continuous temperature monitoring</li> <li>▪ Standard operating protocols</li> <li>▪ Safety protocols</li> <li>▪ Training to employees</li> <li>▪ Emergency response plan</li> </ul>
Chemical hazards, including fire and explosions	<ul style="list-style-type: none"> <li>▪ Large quantity of solvents</li> </ul>	<ul style="list-style-type: none"> <li>▪ Exposure to chemicals</li> <li>▪ Accidental spills of chemical</li> </ul>	<ul style="list-style-type: none"> <li>▪ Prevention via in-built safety measures, operational safety measures, standard operating procedures</li> <li>▪ Fire safety protection to handle chemical hazards</li> <li>▪ Training to employees</li> <li>▪ Emergency response plan</li> <li>▪ Minimal inventory plan</li> </ul>
Pathogenic and biological hazards	<ul style="list-style-type: none"> <li>▪ No pathogenic or biological samples will be handled during the project</li> </ul>	Not applicable	Not applicable
Radiological hazards	<ul style="list-style-type: none"> <li>▪ No radiological substances are involved in the project</li> </ul>	Not applicable	Not applicable
Noise	<ul style="list-style-type: none"> <li>▪ Noise generated through chemical process equipment, reactors</li> </ul>	<ul style="list-style-type: none"> <li>▪ Increased noise levels in the surroundings</li> </ul>	Chemical process equipment, reactors does not involve heavy machinery. No significant noise problem is expected due to proposed activity
Process safety	<ul style="list-style-type: none"> <li>▪ Solvent spillage</li> <li>▪ Glassware breakage</li> </ul>	<ul style="list-style-type: none"> <li>▪ Prolonged downtime</li> <li>▪ Damage to the facility</li> </ul>	<ul style="list-style-type: none"> <li>▪ Regular maintenance and inspection of equipment</li> <li>▪ Standard operating procedures for each process step</li> <li>▪ Solvent spill control mechanisms</li> <li>▪ Glassware waste collection</li> </ul>

### III. COMMUNITY HEALTH AND SAFETY AND RISK MITIGATION

Risks	Project Specific Risk	Potential Impact	Mitigation Steps
Safety Transportation Management System (for transport of hazardous material)	<ul style="list-style-type: none"> <li>▪ Transportation of solvents</li> </ul>	<ul style="list-style-type: none"> <li>▪ Solvent spillage on road</li> <li>▪ solvent vapour exposure to transportation agents</li> </ul>	<ul style="list-style-type: none"> <li>▪ Local procurement of materials to minimise transport distance</li> <li>▪ Appropriate labelling of containers</li> <li>▪ Ensuring that the volume, nature, integrity and protection of packaging and containers used for transport are appropriate</li> <li>▪ Providing the necessary means for emergency response</li> </ul>
Emergency preparedness and participation of local authorities and potentially affected communities	<ul style="list-style-type: none"> <li>▪ Electric, chemical fire</li> <li>▪ Reactor explosion</li> <li>▪ Chemical spills</li> <li>▪ Floods</li> <li>▪ Civil disturbance</li> </ul>	<ul style="list-style-type: none"> <li>▪ Human health, property and environment</li> </ul>	<ul style="list-style-type: none"> <li>▪ Guidance document for emergency preparedness and response plan</li> <li>▪ Distinctive and recognisable alarm systems to indicate emergency</li> <li>▪ List of contacts in case of emergency</li> </ul>