# Laboratory process risk assessment matrix

Table F-3

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Laboratory Process and Procedure Overview** | | | | | | | | | | | | | |
| **Laboratory Director / Principal Investigator:**  **Location:**  **Process Title:**  **Description:** | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | |
| **Hazard and Exposure Category** | | **How could you be exposed to this hazard?** | | **Given the exposure, what is negative outcome?** | | **Severity of Consequences** | | | | **Probability of**  **Occurrence** | | | **Risk Rating**  **(CV\*OV)** |
| **What is the expected harm?** | | **(CV)**  **Value**  **(1,5,10,20)** | | **Existing Control Measure In Place** | | **(OV)**  **Value (0,1,2,3,4)** |
| **Training and Documentation** | | | | | | | | | | | | | |
| Specialized training requirements for material hazards | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Specialized training requirements for equipment / process hazards | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| **Spill and Emergency Planning** | | | | | | | | | | | | | |
| Means of Egress (Emergency) | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Unattended Operations | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Working Alone | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| **Personal Protective Clothing, Equipment and Engineering Controls** | | | | | | | | | | | | | |
| Skin / Hand Hazards | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Eye / Face Hazards | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Respiratory Hazards | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Eye Hazards | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Cut or Puncture Hazards from Sharp Objects | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| **Chemical Safety and Exposure Assessment (Global Harmonization Standard (GHS) Hazard Statement Codes in Parenthesis)** | | | | | | | | | | | | | |
| Explosive  Self-Reactive Substances  Organic Peroxides (A-B)  (GHS: H200-H205; H240; H241) | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Pyrophoric  Self-Heating Substances  Organic Peroxides (C-F)  (GHS: H242; H250) | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Flammable Liquids  (GHS: H224-H226) | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Flammable Solid or Combustible Dust  (GHS: H228) | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Oxidizer, Organic Oxidizer  (GHS: H271; H272) | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Corrosive Acid or Base  (GHS: H290; H314; H318) | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Acute Toxicity  (inhalation)  (GHS: H330; H331) | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Acute Toxicity  (oral, dermal)  (GHS: H300; H301; H310; H311) | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Other Irritants  Dermal Sensitizers  Harmful Materials  Narcotic Effects  (GHS: H302; H312; H315; H317; H319; H332; H335; H336) | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Respiratory Sensitization, Germ Cell Mutagenicity, Carcinogenicity, Reproductive Toxicity, Specific Target Organ Toxicity, Aspiration Hazard  (GHS: H304; H334; H340-H373) | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Impacts to the Environment  (GHS: H400–H420) | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Material Handling of Chemicals (Bulk) | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| **Compressed and Cryogenic Gas Safety and Exposure Assessment (GHS Hazard Statement Codes in Parenthesis)** | | | | | | | | | | | | | |
| Flammable Gas/Aerosols  (GHS: H220–H223) | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Compressed Gas  (GHS: H280) | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Cryogenic Liquid/Gas  (GHS: H281) | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| **Biological Safety and Exposure Assessment** | | | | | | | | | | | | | |
| Human blood, tissue, fluids, or other potentially infectious materials  (Bloodborne Pathogens) | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Bacteria, viruses, or other research biohazardous agents other than human materials | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Working with Animals | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| **Radiation Safety and Exposure Assessment** | | | | | | | | | | | | | |
| Non-ionizing radiation (Laser) |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | | 0 |
| Non-ionizing radiation (Electromagnetic) |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | | 0 |
| Radiation Producing Equipment  (Electron Microscope, X-ray diffraction, Diagnostic X-ray, Computed Tomography) |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | | 0 |
| Radioactive Materials:  Unsealed Sources |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | | 0 |
| Radioactive Materials:  Sealed Sources |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | | 0 |
| Radioactive Waste:  Solid (paper, plastic glass), Solid Other, Liquid (aqueous, non-aqueous), Mixed Chemical Waste |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | | 0 |
| **General Laboratory Safety and Exposure Assessment** | | | | | | | | | | | | | |
| Heat/Cold | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Noise | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Walking/Working Surfaces | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Electrical Hazards and Energy Control (Lock-out/Tag-out) | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Fall Hazards | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| **Equipment and Physical Hazards Exposure Assessment** | | | | | | | | | | | | | |
| Pressure Vessels | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Rotating Equipment & Points of Operation | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Welding/Cutting Hazards | |  | |  | |  | | No=1  Minor=5  Mod=10  High=20 | |  | | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |

This file is excerpted from “Identifying and Evaluating Hazards in Research Laboratories: Guidelines developed by the Hazard Identification and Evaluation Task Force of the American Chemical Society’s Committee on Chemical Safety”.

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