# Laboratory hazard risk assessment matrix

Table F-2

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Laboratory Information** | | | | | | | | | |
| **Laboratory Director / Principal Investigator:**  **Location:** | | | | | | | | | |
|  | | | | | | | | | |
| **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** | | | | | | | | | |
| Personnel are appropriately trained (hazard communication, waste handling, process and chemical specific hazards and risks and mitigation, emergency procedures) | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Personnel are aware of all activities in the lab and associated hazards and risks | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Average experience of lab personnel | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| SDSs and other hazard documentation are available as appropriate | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Hazard communication program is in place | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Process-specific risk assessment has been conducted for all processes and processes optimized | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Process-specific risk assessments are reviewed periodically | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Average value of process-specific risk assessment for all processes | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| **Spill and Emergency Planning** | | | | | | | | | |
| Emergency response equipment is available and appropriate (spill kits, showers, etc.) | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Means of egress | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Appropriate emergency response materials available and accessible | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| What is the worst thing that could happen in the lab? | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| **Personal Protection 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** | | | | | | | | | |
| Hazard level of materials stored in lab | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Amount of hazardous materials stored in lab | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Adequate space and proper types of storage for materials | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Condition of containers and contents | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Appropriate material segregation | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Appropriate security measures are in place | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Current Comprehensive Inventory | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Containers are appropriately labeled | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| **Biological Safety** | | | | | | | | | |
| Hazard level of materials stored in lab | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Amount of hazardous materials stored in lab | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Adequate space and proper types of storage for materials | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Condition of containers and contents | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Appropriate material segregation | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Appropriate security measures are in place | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Current Comprehensive Inventory | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Containers are appropriately labeled | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| **Radiation Safety** | | | | | | | | | |
| Hazard level of materials stored in lab | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Amount of hazardous materials stored in lab | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Adequate space and proper types of storage and shielding for materials | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Condition of containers and contents | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Appropriate material segregation | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Appropriate security measures are in place | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Current Comprehensive Inventory | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Containers are appropriately labeled | |  | |  |  | 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** | | | | | | | | | |
| Hazard level of materials stored in lab | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Amount of hazardous materials stored in lab | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Adequate space and proper types of storage for materials | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Condition of containers and contents | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Appropriate material segregation | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Appropriate security measures are in place | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Current Comprehensive Inventory | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Containers are appropriately labeled | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| **Equipment and Physical Hazards Safety** | | | | | | | | | |
| Sharps Hazards | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Trip hazards | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Electrical hazards | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Temperature extreme hazards | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Pressure Extreme Hazards | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Moving Parts Hazards | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| **General Laboratory Safety** | | | | | | | | | |
| Facilities are adequate for types and quantities of chemicals present | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| Facilities are adequate for types and quantities of processes occurring in the lab | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| **Waste Management** | | | | | | | | | |
| All waste is stored and segregated appropriately | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| All waste is appropriately labeled | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| All waste is removed on a regular basis | |  | |  |  | No=1  Minor=5  Mod=10  High=20 |  | N/A=0  Rare=1  Poss=2  Likely=3  Certain=4 | 0 |
| All waste containers and contents are in good condition | |  | |  |  | 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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