The 07 principle of HACCP are…

| | |
|---|---|
| **Principle 01** | **Conduct a Hazard Analysis** |
| Principle 02 | Identify Critical Control Points (CCP) |
| Principle 03 | Establish Critical Limits for CCP |
| Principle 04 | Establish Monitoring Procedures |
| Principle 05 | Establish Corrective Actions |
| Principle 06 | Establish Record Keeping Procedures |
| Principle 07 | Establish Verification Procedures |

Verified flow diagram is the main skeleton of hazard analysis to conduct. The HACCP team must identify potential hazard for each step from the process flow resulting from…

- Contamination from biological, chemical or physical contaminants
- Re-contamination from biological, chemical or physical contaminants
- Survival or multiplication of pathogenic micro-organisms
- Un-acceptable generation of chemical on the
- Production line
- Intermediate product
- Final product
- Environment
- Production or persistence of toxin
- Undesirable products of microbial metabolism
- Allergens
- Etc.

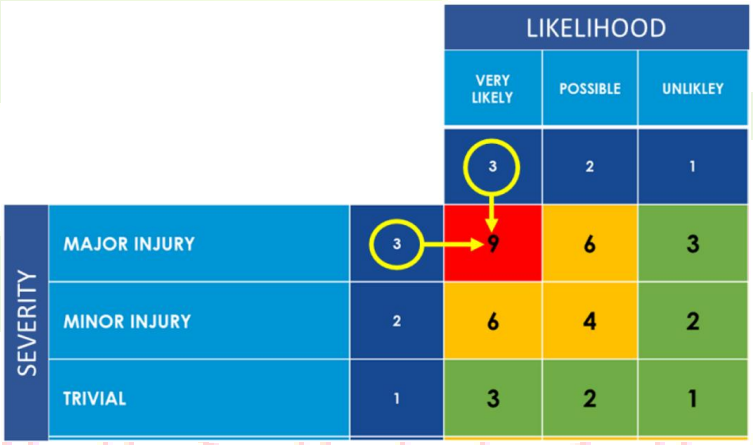



Figure: Risk Analysis Control Measure [sample copy]

Step and hazard setting on worksheet.

- Step No
- Ingredients or Process Step
- Type of Hazard
    - Physical
    - Chemical
    - Biological

**Ingredients/Process-Step & Hazard Type Identification**

1st of all, we must need to establish a table chart system by which we can input all the information regarding hazard analysis. To construct a hazard analysis data sheet, we must need to brainstorm…

- Process Steps – each process steps must have Physical, Chemical & Biological conditions.
- Ingredient – each ingredients must have Physical, Chemical & Biological conditions.

The initial task is to identify the physical, chemical and biological conditions.

| Step No | Ingredient/Process-step | No. | Type |
|---|---|---|---|
| | Deep Tube Well | | P |
| | | | C |
| | | | B |

**Hazard details**

Listing down the potential hazard is the 2nd step after identifying the physical, chemical and biological conditions. Potential hazard must be listed down by proper brainstorming. The HACCP team member must have to sit all together to establish the data base.

| Step No | Ingredient/Process-step | No. | Type | Hazard |
|---|---|---|---|---|
| | Deep Tube Well | | P | Debris, Black Particle, Foreign Particle, Fe in dissolve form |
| | | | C | Hardness |
| | | | B | Coliform indicator |

**Source of hazard**

The source identification is also a major part in hazard analysis. HACCP frame work studies from farm to fork or farm to table. This is why the source analysis is a major part in hazard analysis. If the source study is well established, so the easier to move on hazard enlisting and to take the initiatives to control the potential hazard.

| Step No | Ingredient/Process-step | No. | Type | Hazard | Source |
|---|---|---|---|---|---|
| | Deep Tube Well | | P | Debris, Black Particle, Foreign Particle, Fe in dissolve form | Underground water layer |
| | | | C | Hardness | Underground water layer |
| | | | B | Coliform indicator | Underground water layer |

**Consequence of hazard**

Each hazard has its own consequences to cause hazard or illness. The consequences of hazard or illness must be enlisted to determine the likelihood and severity.

| Step No | Ingredient/ Process-step | No. | Type | Hazard | Source | Consequence of Hazard |
|---|---|---|---|---|---|---|
| | Deep Tube Well | | P | Debris, Black Particle, Foreign Particle, Fe in dissolve form | Underground water layer | Product contamination & health related issue |
| | | | C | Hardness | Underground water layer | Product contamination & health related issue |
| | | | B | Coliform indicator | Underground water layer | Product contamination & health related issue |

**Control measures**

Control of measure is also a major part in hazard analysis. HACCP Team will do the study of control measure, how to control the enlisted hazard as well as its consequence. All the points must be enlisted with proper care and caution.

| Step No | Ingredient/ Process-step | No. | Type | Hazard | Consequence of Hazard | Control Measure |
|---|---|---|---|---|---|---|
| | Deep Tube Well | | P | Debris, Black Particle, Foreign Particle, Fe in dissolve form | Product contamination & health related issue | MGF, ACF, Softener on the next cycle |
| | | | C | Hardness | Product contamination & health related issue | MGF, ACF, Softener on the next cycle |
| | | | B | Coliform indicator | Product contamination & health related issue | Cl dosing at 0.2-0.5 ppm while water taken from underground |

A table sheet regarding “Likelihood & Severity” must be established to determine a numbering system. The numbering system will help to take decision based on the score.

**Risk Analysis Numbering:**

As the potential hazards have been identified, so it's time for evaluating the findings.

Risk Analysis by…

- Likelihood
- Severity
- Risk score

HACCP team must evaluate the findings according to likelihood and severity of their adverse health effects as well as the qualitative and/or quantitative evaluation.

| Step No | Ingredient/ Process-step | No. | Type | Hazard | Likelihood | Severity | Risk Score |
|---|---|---|---|---|---|---|---|
| | Deep Tube Well | | P | Debris, Black Particle, Foreign Particle, Fe in dissolve form | 1 | 1 | **1** |
| | | | C | Hardness | 1 | 1 | **1** |
| | | | B | Coliform indicator | 1 | 1 | **1** |

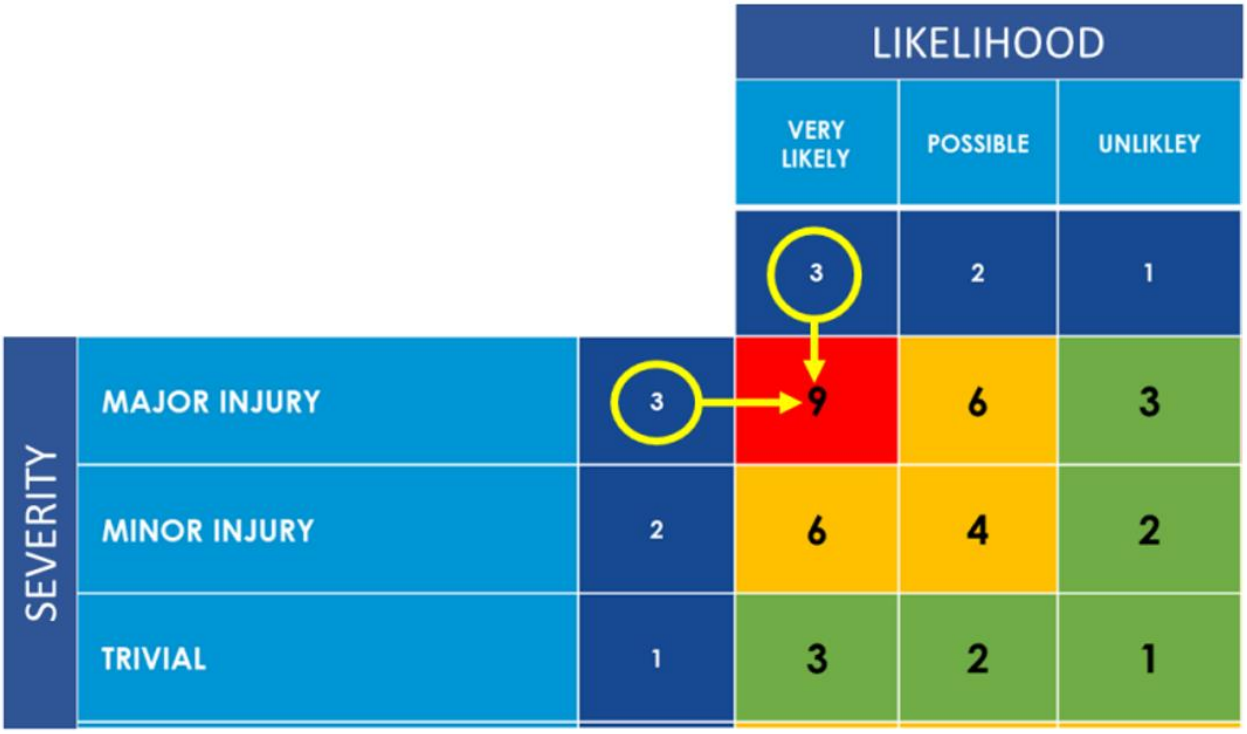



Figure: Risk Analysis Control Measure [sample copy]

Figure: Risk Analysis Control Measure [sample copy] [this table sheet can also be used for analysis]

The information can be taken from…

- Experience
- Illness data
- Scientific reports
- Other information

If a hazard is not likely to occur, that program must be implemented, checked, corrected and documented.

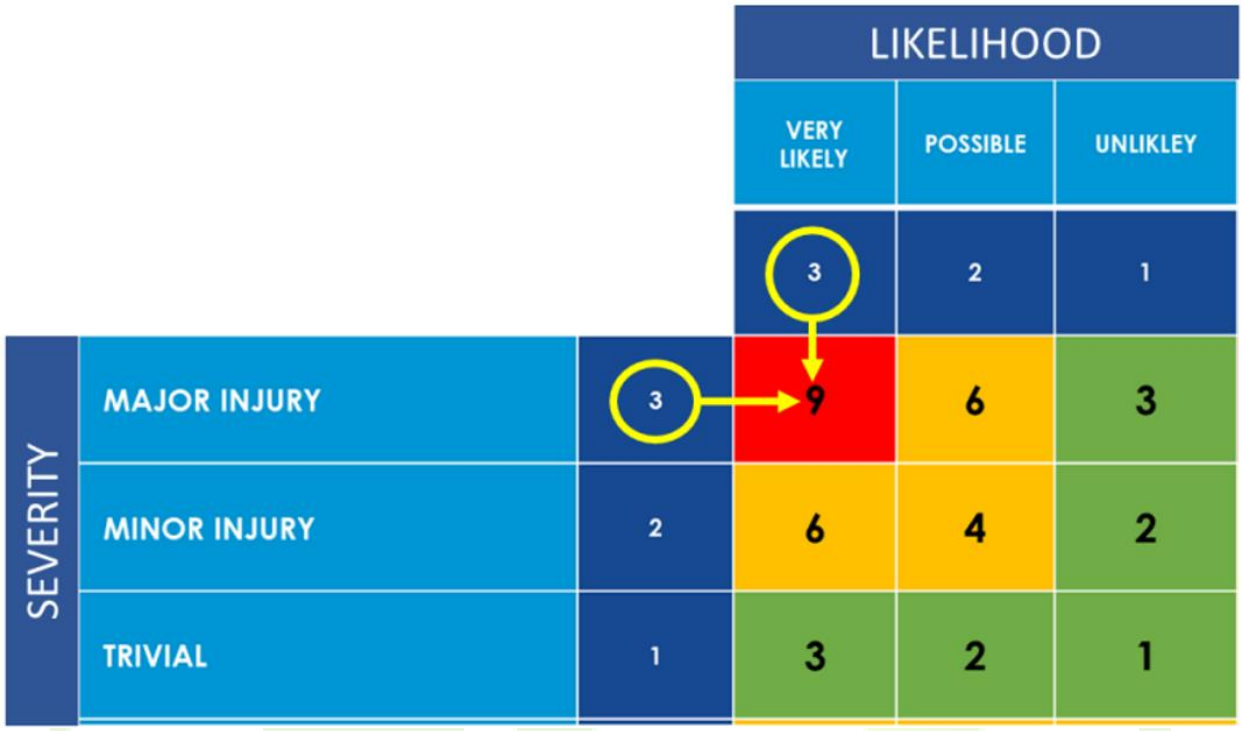
On the other hand, if a hazard is likely to occur, the HACCP team must identify a control measure to control the hazard.

**Hazard type significance**

Hazard type significance will be declared based on the "risk score numbering" system. The type significance has two parts…

- Significant – the control measure must be taken immediately & monitor strongly. Initiatives must take to control the hazard to an acceptable level.
- Non-Significant - the control measure must be taken & monitored as well & it has a low priority. But, the hazard and its consequence must be kept on mind.

| Step No | Ingredient/ Process-step | No. | Type | Hazard | Likelihood | Severity | Risk Score | Hazard Type |
|---|---|---|---|---|---|---|---|---|
| | Deep Tube Well | | P | Debris, Black Particle, Foreign Particle, Fe in dissolve form | 1 | 1 | **1** | In-Significant |
| | | | C | Hardness | 1 | 1 | **1** | In-Significant |
| | | | B | Coliform indicator | 1 | 1 | **1** | In-Significant |



| SEVERITY | | LIKELIHOOD | | |
|---|---|---|---|---|
| | | VERY LIKELY | POSSIBLE | UNLIKLEY |
| | | 3 | 2 | 1 |
| MAJOR INJURY | 3 | 9 | 6 | 3 |
| MINOR INJURY | 2 | 6 | 4 | 2 |
| TRIVIAL | 1 | 3 | 2 | 1 |

Figure: Risk Analysis Control Measure [sample copy]

| Risk Assessment Control Measure | | | Severity | | | | |
|---|---|---|---|---|---|---|---|
| From 1 – 4 = Low Risk | | | Negligible | Minor | Moderate | Major | Extreme |
| From 5 – 10 = Med Risk | | | | | | | |
| From 12 – 25 = High Risk | | | 1 | 2 | 3 | 4 | 5 |
| Likelihood (Probability) | Very Unlikely | 1 | 1 | 2 | 3 | 4 | 5 |
| | Rarely Occur | 2 | 2 | 4 | 6 | 8 | 10 |
| | Possible | 3 | 3 | 6 | 9 | 12 | 15 |
| | Likely Occur | 4 | 4 | 8 | 12 | 16 | 20 |
| | Occurs Frequently | 5 | 5 | 10 | 15 | 20 | 25 |

Figure: Risk Analysis Control Measure [sample copy]