

FMEA

Severity Rankings

Ranking	Effect	Design FMEA Severity	Process FMEA Severity
10	Hazardous-no warning	affects safe operation without warning	may endanger machine or operator without warning
9	Hazardous- w/ warning	affects safe operation with warning	may endanger machine or operator with warning
8	Very High	makes product inoperable	major disruption in operations (100% scrap)
7	High	makes product operable at reduced performance (customer dissatisfaction)	minor disruption in operations (may require sorting and some scrap)
6	Moderate	results in customer discomfort	minor disruption in operations (no sorting but some scrap)
5	Low	results in comfort and convenience at a reduced level	minor disruption in operations (portion may require rework)
4	Very Low	results in dissatisfaction by most customers.	minor disruption in operations (some sorting and portion may require rework)
3	Minor	results in dissatisfaction by average customer.	minor disruption (some rework but little affect on production rate)
2	Very Minor	results in dissatisfaction by few customers.	minor disruption (minimal affect on production rate)
1	None	No effect	No effect

Occurrence Rankings

Ranking	Effect	Failure Rates	Percent Defective	Cpk
10	Extremely High	> 1 in 2	50%	Cpk < 0.33
9	Very High	1 in 3	33%	Cpk ~ 0.5
8	Very High	1 in 8	10-15%	Cpk ~ 0.75
7	High	1 in 20	5%	
6	Marginal	1 in 100	1%	
5	Marginal	1 in 400	0.25%	Cpk ~ 1
4	Unlikely	1 in 2000	0.05%	
3	Low	1 in 15,000	0.007%	Cpk > 1.33
2	Very Low	1 in 150,000	0.0007%	Cpk > 1.5
1	Remote	< 1 in 1,500,000	0.000007%	Cpk > 1.67

Detection Rankings

Ranking	Effect	Design FMEA Detection	Process FMEA Detection
10	Absolute uncertainty	No chance that design control will detect cause mechanism and subsequent failure.	No known process control to detect cause mechanism and subsequent failure.
9	Very remote	Very remote chance that design control will detect cause mechanism and subsequent failure.	
8	Remote	Remote chance that design control will detect cause mechanism and subsequent failure.	Remote chance that process control to detect cause mechanism and subsequent failure.
7	Very Low	Very low chance that design control will detect cause mechanism and subsequent failure.	
6	Low	Low chance that design control will detect cause mechanism and subsequent failure.	Low chance that process control to detect cause mechanism and subsequent failure.
5	Moderate	Moderate chance that design control will detect cause mechanism and subsequent failure.	
4	Moderately High	Moderately high chance that design control will detect cause mechanism and subsequent failure.	
3	High	very remote chance that design control will detect cause mechanism and subsequent failure.	High chance that process control to detect cause mechanism and subsequent failure.
2	Very High	Very high chance that design control will detect cause mechanism and subsequent failure.	
1	Almost Certain	Design control will almost certainly detect cause mechanism and subsequent failure.	Current control almost certain to detect cause mechanism and failure mode.

Risk Level (SxOxD)	
Level	Range
None	0
Low	8-40
Medium	80-240
High	320-1,000