

Crumb Rubber Pre-Filter Risk Assessment Analysis

Rank	Risk Item	Engineering specs	Customer needs	Effect	Cause	Likelihood	Severity	Importance	Action to Minimize / Mitigate Risk	Owner
	Describe the risk briefly			What is the effect on any or all of the project deliverables if the cause actually happens?	What are the possible cause(s) of this risk?			L * S	What action(s) will you take (and by when) to prevent, reduce the impact of, or transfer the risk of this occurring?	Who is responsible following through on mitigation?
1	Crumb Rubber Fails as viable filter media due to leaching of chemicals and failure to meet NSF water quality standards	1 2	3 4 5 13	Need to determine alternative filter media, also could use material to remove what crumb rubber leaches into water	·Crumb rubber adds VOC's or heavy metals	3	3	Prevent	·Test early ·Review existing research ·Use a different filter media	Cody
2	Crumb rubber is safe, but does not filter particles well enough for use with the UV system	8	3 4 13	Filter is inadequate	· Filter isn't long enough · media doesn't remove enough particles · particulate accumulation · media adds particulate	2	3	Prevent	·Test early ·Be prepared to use a different filter media · Optimize filter dimensions	Tom
3	Output water has turbidity greater than 5 NTU	1	4	Change filter design or test procedure	· Filter isn't long enough · media doesn't remove turbidity · media adds turbidity · particulate accumulation	2	3	Prevent	Optimize filter dimensions	Tom
4	Crumb Rubber affects taste or smell of water		5 13	Water will not meet customer specs	· Crumb rubber adds particulates · Crumb rubber dissolved substances	2	3	Prevent	·Be prepared to use a different filter media	Cody
5	Modeling of filter shows need for excessive size	6	7 10	Filter media will be reconsidered	Filter does not remove enough particulates	2	2	Reduce	·Be prepared to use a different filter media	Cody
6	Crumb rubber filter reduces water flow to below 5 liters per minute	3	2	Filter is inadequate	· Filter media size is too fine · filter is too long · input pressure is too low · particulate accumulation	2	2	Reduce	·Increase testing pressure ·Use a different filter media · Optimize filter dimensions	Tom
7	Malfunction			Will require diagnosis and repair	·Sabotage ·Faulty equipment ·Incorrect use	2	2	Reduce	·Check all parts before each use ·Replace broken part(s) ·Re-assess design to prevent future failure	Bettina
8	External Testing takes too long			Project on hold until results received	·Late submission to testing facility ·Testing facility problems ·Need to repeat tests	2	2	Reduce	·Get samples to testing facility as soon as possible ·Be clear when ordering tests ·Send extra sample to testing facility	Cody
9	Crumb rubber does not have consistent constituents	1 2 3 6	13	Constant possibility of Unidentified, unknown contamination of water	Crumb rubber contains different densities or different chemical compositions	3	1	Accept	·Model Filter for worst case scenario ·Test more than one sample	Bettina
10	Parts shipped not received or incorrect parts			Production stopped until rectified	·Team, office, or supplier error ·Shipping address unclear ·Not keeping track of packages	1	2	Reduce	·Confirm orders ·Be sure address is clear ·Keep track of packages w/ tracking info	Bettina

Crumb Rubber Pre-Filter Test Stand Risk Assessment Analysis

Rank	Risk Item	Engineering spec	Customer need	Effect	Cause	Likelihood	Severity	Importance	Action to Minimize / Mitigate Risk	Owner
	<i>Describe the risk briefly</i>			<i>What is the effect on any or all of the project deliverables if the cause actually happens?</i>	<i>What are the possible cause(s) of this risk?</i>			<i>L * S</i>	<i>What action(s) will you take (and by when) to prevent, reduce the impact of, or transfer the risk of this occurring?</i>	<i>Who is responsible following through on mitigation?</i>
1	Test stand does not yield accurate results	12 13 14 15 16 17	23 24 26 27 28	Water may not meet customer specs	·Faulty testing equipment	1	3	Reduce	·Test the testing devices first, be sure calibrated correctly.	Tom
2	Parts shipped not received or incorrect parts			Production stopped until rectified	·Team, office, or supplier error ·Shipping address unclear ·Not keeping track of packages	2	1	Reduce	·Confirm orders ·Be sure address is clear ·Keep track of packages w/ tracking info	Cody
3	Malfunction			Will require diagnosis and repair	·Sabotage ·Faulty equipment ·Incorrect use	2	2	Reduce	·Check all parts before each use ·Replace broken part(s) ·Re-assess design to prevent future failure	Bettina
4	Test stand does not measure flow	12	23	Filter may not meet required flow rate	•Faulty testing equipment	1	2	Reduce	·Replace faulty meter	Cody
4	Test stand does not measure head loss	13	24	Filter may not	•Faulty testing equipment	1	2	Reduce	·Replace faulty gages	Tom

Likelihood scale		Severity scale	
1 - This cause is unlikely to happen		1 - The impact on the project is very minor. We will still meet deliverables on time and within budget, but it will cause extra work.	
2 - This cause could conceivably happen		2 - The impact on the project is noticeable. We will deliver reduced functionality, go over budget, or fail to meet some of our Engineering Specifications.	
3 - This cause is very likely to happen		3 - The impact on the project is severe. We will not be able to deliver, or what we deliver will not meet the customer's needs.	
“Importance Score” (Likelihood x Severity) – use this to guide your preference for a risk management strategy			
Prevent	Action will be taken to prevent the cause(s) from occurring in the first place.		
Reduce	Action will be taken to reduce the likelihood of the cause and/or the severity of the effect on the project, should the cause occur		
Transfer	Action will be taken to transfer the risk to something else. Insurance is an example of this. You purchase an insurance policy that contractually binds an insurance company to pay for your loss in the event of accident. This transfers the financial consequences of the accident to someone else. Your car is still a wreck, of course.		
Accept	Low importance risks may not justify any action at all. If they happen, you simply accept the consequences.		