

designsafe Report

Application: Sample Machine / Product Analyst Name(s): Joe Maintenance, Jane Engineer, John Doe
 Description: This example analysis shows some of the basics of a risk assessment. Company: Acme Products
 Product Identifier: Facility Location: Ann Arbor, Michigan, USA
 Assessment Type: Detailed
 Limits:
 Sources: personnel experiences, ANSI B11 standards, OSHA 1910 regulations, assembly drawings W-Z
 Risk Scoring System: ANSI B11.0 (TR3) Two Factor

Guide sentence: When doing [task], the [user] could be injured by the [hazard] due to the [failure mode].

Item Id	User / Task	Hazard / Failure Mode	Initial Assessment		Risk Reduction Methods /Comments	Final Assessment		Status / Responsible
			Severity Probability	Risk Level		Severity Probability	Risk Level	
1-1-1	Engineer Common Tasks	mechanical : crushing Dropping pump on foot	Moderate Likely	Medium	Use existing three-shelf cart; sticker warning "HEAVY"	Moderate Unlikely	Low	On-going [Daily] Engineer
1-1-2	Engineer Common Tasks	mechanical : cutting / severing Cutting of membrane, tubing, baseboard components	Moderate Likely	Medium		Moderate Unlikely	Low	TBD Engineer
1-1-3	Engineer Common Tasks	mechanical : pinch point Moving parts, especially gears and turntables	Minor Likely	Low	Build components before attaching motor	Minor Unlikely	Negligible	TBD Engineer
1-1-4	Engineer Common Tasks	mechanical : stabbing / puncture Drilling	Serious Unlikely	Medium	Training	Serious Unlikely	Medium	On-going [Daily] Engineer
1-1-5	Engineer Common Tasks	mechanical : unexpected start Plugging in components, fluid leaks on motor	Moderate Unlikely	Low	Secure all tubing. Locate leaks early.	Moderate Unlikely	Low	On-going [Daily] Engineer
1-1-6	Engineer Common Tasks	slips / trips / falls : slip Silicone oil or water spills	Moderate Likely	Medium	Locate leaks early. Secure tubing	Moderate Likely	Medium	On-going [Daily] Engineer
1-1-7	Engineer Common Tasks	slips / trips / falls : trip Tripping over power cords	Moderate Likely	Medium	Supply extension cords and have them run along the edge of the room	Moderate Unlikely	Low	TBD Engineer
1-1-8	Engineer Common Tasks	noise / vibration : equipment damage Motor too close to MRI bore	Serious Unlikely	Medium	Move back motor position	Serious Unlikely	Medium	TBD Engineer

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1-1-9	Engineer Common Tasks	noise / vibration : fatigue / material strength Membrane fatigue	Minor Unlikely	Negligible	Avoid excessive deformation	Minor Likely	Low	On-going [Daily] Engineer
1-1-10	Engineer Common Tasks	material handling : stacking Stacking components on baseboard	Minor Unlikely	Negligible	Training	Minor Unlikely	Negligible	On-going [Daily] Engineer
1-1-11	Engineer Common Tasks	material handling : excessive weight Lifting heavy components	Moderate Unlikely	Low	Use cart	Moderate Unlikely	Low	On-going [Daily] Engineer
1-1-12	Engineer Common Tasks	chemical : reaction to / with irritant chemicals Reaction to silicone oil	Minor Likely	Low	Gloves, wash hands after handling	Minor Unlikely	Negligible	On-going [Daily] Engineer
1-1-13	Engineer Common Tasks	mri : projectiles Metals too close to MRI	Serious Unlikely	Medium	Ensure all components are non-metal	Serious Unlikely	Medium	On-going [Daily] Engineer
1-1-14	Engineer Common Tasks	reaction to / with irritant chemicals[3] Contact with gadolinium	Moderate Unlikely	Low	Gloves, wash hands after handling	Moderate Unlikely	Low	On-going [Daily] Engineer
2-1-1	operator Common Tasks	mechanical : crushing Drop syringe pump on foot	Moderate Likely	Medium	Recommend the client to place the phantom on existing three-shelf cart; sticker warning "HEAVY"	Moderate Unlikely	Low	On-going [Daily] Engineer
2-1-2	operator Common Tasks	mechanical : cutting / severing Cut on sharp edges of PVC baseboard	Moderate Unlikely	Low	Sand edges to smooth curve	Moderate Unlikely	Low	TBD Engineer
2-1-3	operator Common Tasks	mechanical : pinch point Pinched in moving components, particularly gears, axle, or turntable	Minor Unlikely	Negligible	The motor operates slowly, making pinching unlikely. Parts move back and forth so pinches would be immediately released. Label with "CAUTION: Moving components. Do not touch while in operation."	Minor Unlikely	Negligible	On-going [Daily] operator

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2-1-4	operator Common Tasks	mechanical : unexpected start Fluid leaking onto motor	Moderate Unlikely	Low	Oil is not very conductive and not likely to lead to electrical shock	Moderate Unlikely	Low	On-going [Daily] operator
2-1-5	operator Common Tasks	slips / trips / falls : slip Spill silicone oil or water	Moderate Likely	Medium	Tightly secure all tubes and valves. Ask the operator to observe the machine during setup, operation, and takedown so that any leaks are noticed	Moderate Unlikely	Low	On-going [Daily] operator
2-1-6	operator Common Tasks	slips / trips / falls : trip Trip over power cords	Moderate Likely	Medium	Supply user with extension cords so cords can run along the edge of the room instead of through walking areas	Moderate Unlikely	Low	TBD engineer
2-1-7	operator Common Tasks	ergonomics / human factors : lifting / bending / twisting Lifting motion stage out of ViewRay machine	Moderate Unlikely	Low		Moderate Unlikely	Low	On-going [Daily] operator
2-1-8	operator Common Tasks	material handling : stacking Folded baseboard or stacking of phantom components	Minor Unlikely	Negligible	Train users in how to properly fold baseboard	Minor Unlikely	Negligible	On-going [Daily] engineer
2-1-9	operator Common Tasks	chemical : reaction to / with irritant chemicals Exposure to silicone oil	Minor Unlikely	Negligible	Silicone oil is not corrosive or harmful to the human body.	Minor Unlikely	Negligible	On-going [Daily] operator
2-1-10	operator Common Tasks	chemical : reaction to / with irritant chemicals[2] Exposure to gadolinium	Minor Unlikely	Negligible	Wear gloves during handling. Wash thoroughly. Dispose in closed containers.	Minor Unlikely	Negligible	On-going [Daily] operator
2-1-11	operator Common Tasks	fluid / pressure : fluid leakage / ejection Leaking of oil	Minor Unlikely	Negligible	Use of acrylic, PVC, and other plastics to prevent warping	Minor Unlikely	Negligible	TBD engineer
2-1-12	operator Common Tasks	mri : projectiles Magnetization of metals components in MRI	Serious Unlikely	Medium	Use only non-metals in MRI bore	Serious Unlikely	Medium	On-going [Daily] operator

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2-1-13	operator Common Tasks	mri : motor failure/movement Motor positioned too close to MRI	Serious Unlikely	Medium	Motor is positioned at least 150 cm from MRI bore. Bolt down motor to baseboard	Serious Unlikely	Medium	TBD engineer