



CMS100 CHIPPER MULCHER SHREDDER

HAZARD EVALUATION

 **RED ROO**TM
Commercial Environmental Equipment

Online Demonstration Available at: www.redroo.com/products/mulcher

QUESTION? CAN A PERSON BE INJURED?	HAZARD Y OR N?	What is the Hazard?	HAZARD RATING No.	If Rating No. is 15 or less What is the CONTROL?
A. ENTANGLEMENT 1. Can anyone's hair, clothing, gloves, necktie, jewellery, cleaning brushes, rags, or other materials become entangled with moving parts of the plant, or materials in motion?	Y	Machine's Function	21	Guarding, Operator's Control Zone. Shut off Engine when out of zone
B. CRUSHING 1. Can anyone be crushed due to				
a. Material falling off the plant?	N			
b. Uncontrolled or unexpected moving of the plant or its load?	N			Selection by Operator
c. Lack of capacity for the plant to be slowed, stopped or immobilised?	N			Selection by Operator
d. The plant tipping or rolling over?	Y	Violation of having Unit on Level Surface to Operate	23	Training Common Sense Usually Towed
e. Part of the plant collapsing?	N			
f. Coming in contact with moving parts of the plant during testing, inspection, operation, maintenance, cleaning or repair?	N			Selection by Operator
g. Being thrown off or under the plant?	N			
h. Being trapped between the plant and material or fixed structures?	N			Selection by Operator
i. Other factors not mentioned? (<i>Spectators must be kept away</i>)	N			Only as Knowledge Increases
C. CUTTING, STABBING & PUNCTURING? 1. Can anyone be cut, stabbed or punctured due to				
a. Coming in contact with sharp or flying objects?	Y	Mulching Hopper Material could Kick Out	20	Location, Guard in Place, Proper Feed Rate
b. Coming in contact with moving parts of the plant during testing, inspection, operations, maintenance, cleaning or repair of the plant?	Y	Penetration of Guarding or Screen	21	Make sure Engine is Shut Off
c. The plant, parts of the plant or work pieces disintegrating?	Y	Items getting past Guards	24	Shut Engine Off
d. Work pieces being ejected?	Y	Operator or Others in Discharge Area	24	Stay in Operator Zone, Safety Gear Required, No Bystanders
e. The mobility of the plant?	N			
f. Uncontrolled or unexpected movement of the plant?	N			
g. Other factors not mentioned? (<i>Spectators must be kept away</i>)	N			Only as Knowledge Increases
D. SHEARING 1. Can anyone's body parts be sheared between two parts of the plant, or material handled by the plant?	N			Selection by Operator
E. FRICTION 1. Can anyone be burnt due to contact with moving parts or surfaces of the plant, or between a part of the plant and a work piece or structure?	Y	Engine Exhaust	20	Do not penetrate Guard Knowledge of Hot Surface
F. STRIKING 1. Can anyone be struck by moving objects due to :				
a. Uncontrolled or unexpected movement of the plant?	N			
b. The plant, parts of the plant or work pieces disintegrating?	Y	Getting into Chipping or Mulching Area	24	Shut Engine Off, Safety Gear worn, Not in Discharge Area
c. Work pieces being ejected?	Y	Discharge Area not secured.	20	Safety Gear worn, Not in Area, Shut Engine Off
d. The mobility of the plant?	N			
e. Other factors not mentioned (<i>Spectators must be kept away</i>)				

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G. HIGH PRESSURE SUBSTANCES 1. Can anyone come into contact with substances under high pressure, due to plant failure or misuse of the plant?	N			Selection by Operator
H. ELECTRICAL 1. Can anyone be injured by electrical shock or burnt due to:				
a. The plant contacting live electrical conductors?	Y	Grounding Breached	24	Weather Selection
b. the plant working in close proximity to electrical conductors?	N			Selection by Operator
c. Overload of electrical circuits?	N			Selection by Operator
d. Damaged or poorly maintained electrical leads and cables?	N			Selection by Operator
e. Damaged electrical switches?	N			Selection by Operator
f. Water near electrical equipment?	N			Selection by Operator
g. Lack of isolation procedures?	N			Selection by Operator
h. Other factors not mentioned?				Only as Knowledge Increases
I. EXPLOSION 1. Can anyone be injured by explosion of gases, vapours, liquids, dusts or other substances, triggered by the operation of the plant or by material handled by the plant?	N			Selection by Operator
J. SLIPPING, TRIPPING & FALLINGS 1. Can anyone using the plant, or in the vicinity of the plant, slip, trip or fall due to:				
a. Uneven or slippery work surfaces?	Y	Machine should always be on Level/Dry Surfaces	20	Training, Common Sense, Adhere to Safe Operating Instructions
b. Poor housekeeping, eg swarf in the vicinity or the plant spillage not cleaned up?	Y	Poor Housekeeping	23	Training, Common Sense
c. Obstacles being placed in the vicinity of the plant, other factors not mentioned?	Y	Poor Site Selection	23	Training, Common Sense
2. Can anyone fall from height due to:				
a. Lack of proper work platform?	N			Selection by Operator
b. Lack of proper stairs or ladders?	N			
c. Lack of guard rails or other suitable edge protection?	N			Selection by Operator
d. Unprotected holes, penetrations or gaps?	N			Selection by Operator
e. Poor floor or walking surfaces, such as the lack on a slip resistant surface?	N			Selection by Operator
f. Steep walking surfaces?	N			Selection by Operator
g. Collapse of the supporting structure?	N			Selection by Operator
h. Other factors not mentioned?	N			Only as Knowledge Increases
K. ERGONOMIC 1. Can anyone be injured due to:				
a. Poorly designated seating?	N			
b. Repetitive body movement?	N			
c. Constrained body posture or the need for excessive effort?	N			Training, Common Sense
d. Inadequate or poorly placed lighting?	N			Selection by Operator
e. Lack of consideration given to human error or human behaviour?	Y	Lazy, Rush, Tired	23	Training, Safety Gear, Common Sense, Supervision, Proper Clothing
f. Mismatch of the plan with human traits and natural limitations?	Y	Under Influence, Lazy, Tired, Cockiness	23	Training, Common Sense, Supervision, Proper Clothing, Safety Gear

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L. SUFFOCATION 1. Can anyone be suffocated due to lack of oxygen, or atmospheric contamination?	N			Selection by Operator
M. HIGH TEMPERATURE OR FIRE 1. Can anyone come into contact with objects at high temperature?	Y	Engine Exhaust	20	Knowledge of Hot Surface
N. TEMPERATURE (THERMAL COMFORT) 1. Can anyone suffer ill health due to exposure to high or low temperature?	N			Weather Selection
O. OTHER HAZARDS 1. Can anyone be injured or suffer ill health from exposure to:				
a. Chemicals?	Y	Use of Chemicals	24	Selection by Operator
b. Toxic fumes or vapours?	N			Selection by Operator
c. Fumes?	N			Selection by Operator
d. Dust?	Y	Feed Making, Dry Material	20	Assume Risk, Mask, Wet Material
e. Noise?	N			
g. Vibration?	Y	Maintenance	23	Proper Maintenance
g. Radiation?	N			
h. Other factors not mentioned?	N			Only as knowledge increases

CALCULATION FOR RISK ASSESSMENT

For each identified hazard consider the maximum credible, not absolute worst case risk that may result and select from each of the following Lists

	Likelihood of Occurrence
1	Expected to Happen
2	Common
3	Sometimes
4	Rarely
5	Highly unlikely

	Severity of Result
A	Fatality
B	Permanent Disability
C	Lost Time Injury
D	Medical Treatment
E	First Aid Injury

Plot the categories selected from 'Likelihood of Occurrence' and 'Severity of Result' onto the Hazard Rating Grid to determine the Hazard Rating Number.

eg. If we plot 4 and B on the Hazard Rating Grid, the Hazard Rating number will be 14.

HAZARD RATING GRID

	A	B	C	D	E
1	1	2	4	7	11
2	3	5	8	12	16
3	6	9	13	17	20
4	10	14	18	21	23
5	15	19	22	24	25

The Hazard Rating Number calculated for the risk assessment of an identified hazard is classified as follows:

- a) Relatively High Risk 1 to 6
- b) Medium Risk 7 to 15
- c) Relatively Low Risk 16 to 25 (acceptable risk)

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You alone know the operational demands and special conditions affecting the equipment in your situation and therefore assume the responsibility for developing, carrying out, and enforcing the safety concepts which apply to your own operation to effect the greatest safety for yourself and the people around you.

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