

Total risk matrix regarding dangers for humans for Nikon Eclipse LV150 – yellow light microscope

Very Serious (E)	3				
Serious (D)	2				
Moderate (C)					
Small (B)		4			
Very small (A)		1			
Cons. ↑ Propab. →	Very small (1)	Small (2)	Average (3)	High (4)	Very high (5)

The colours show areas with evaluated risks which are acceptable (green), considerable, measures should be taken (yellow) and not acceptable, measures MUST be taken to reduce the risk (red).

Description of Consequences

A => Very small	Security / immediate damage to people => damage which requires first aid only	environmental consequences => insignificant damage and short restitution time
B => Small	=> damage which requires professional medical attention	=> less damage and short restitution time
C => Moderate	=> serious damage /illness	=> less damage but long restitution time
D => Serious	=> Serious damage/illness with possible inability to work	=> long lasting damage with long restitution time
E => Very serious	=> Death	=> long lasting and not reversible damage

Description of Propability

1 => Very small	=> Ca. one incident in 50 years or less often
2 => Small	=> Ca. one incident in 10 years or less often
3 => Average	=> Ca. one incident per year or less often
3 => High	=> Ca. one incident per month or less often
4 => Very High	=> weekly

Risk evaluation of Nikon Eclipse LV150 – yellow light microscope

Participants during risk evaluation (+function): Søren Heinze (Chief engineer and instrument responsible)

The responsibility for all described risks lies at the NTNU NanoLab leader and this document is approved by him or her:

ID	Activity/Name	Description (involved dangers and consequences)	Law, regulation	Existing safety measures	Existing documentation and other comments	Probability (1-5)	Consequences (A-E)	
							Humans (A-E)	Environment (A-E)
1	Hot surface	The lamp housing will become hot during use of the microscope.		=> During the instrument course the users are made aware of the hot lamp house => The lamp housing is at the back of the microscope and can't be touched accidentally.	Course and manual	2	A	--
2	Danger for fire	If the ventilation slits are covered heat may accumulate which could start a fire.	Fire regulations	=> During the instrument course the users are made aware to not cover the ventilation slits => The lamp housing is at the back of the microscope and can't be covered accidentally => the instrument is placed in a space which is not for general laboratory work	Course and manual => since the lamp housing has several ventilation slits it is very unlikely that a fire starts	1	D	--

3	Potentially dangerous voltages	Potentially dangerous electrical currents, might be present inside parts of the machine while power is connected to it. This could cause an electric shock if a cover is removed from the unit and internal parts are touched Attention: Capacitors might keep high voltage for some minutes after the power is unplugged	Law regarding service at and work with electrical constructions and equipment	'=> users are not allowed to remove covers from the instrument or parts of it => parts of the machine must just be opened to replace the lamp => such work will just be done by properly trained engineers => the instrument will be disconnected from power and the person who will do the work have to wait some minutes prior work that requires the removal of covers	Course and manual	1	E	--
4	Heavy Components	The instrument has a weight of approx. 20 kg		=> the system shall not be lifted by users	manual	2	B	--