

# APPLICATION NOTE LIFE SCIENCE



## MICROMANIPULATION OF EGGS

# AVOIDING REFLECTIONS ON SURFACES ILLUMINATING THE BORDER BETWEEN THE YOLK AND THE EGG WHITE



Illuminating objects in petri dishes using objective mounted ring lights, creates reflections of the light source on the surface to inspect. Applying a L.E.S.S. lighting system helps to minimize or even eliminate the reflections.

## FEATURES OF L.E.S.S. LIGHTING SYSTEMS APPLIED.

- L.E.S.S. Darkfield Illumination
- Uniform and diffuse illumination with neutral white light (5400 °K)
- No heat dissipation from the ring lights
- Easy adjustment of working distance
- Free view and easy access to the specimen



## APPLICATION

**Fig.1** has been taken with a customary 80 LED ring light. Disturbing reflections of the light source appear on the yolk.

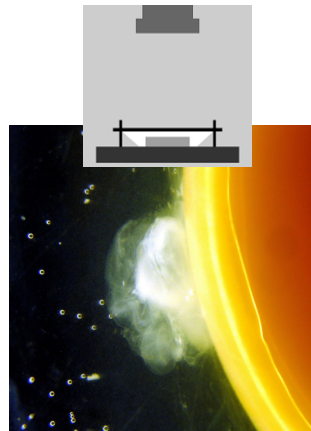
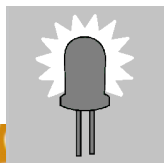
**Fig.2** has been taken with the same lighting configuration as Fig.1 and focuses on the border between the yolk and the egg white. The border is

hardly visible and disturbing reflections of the light source appear on the sample.

**Fig.3** has been taken with the L.E.S.S. Darkfield illumination. In this low angle illumination configuration, the border between the yolk and the egg white is perfectly illuminated. Any germ cells in the area

are revealed. The mechanical configuration makes it easy to observe and manipulate the sample.

With the L.E.S.S. Darkfield illumination, even small air bubbles in the egg white are highlighted. Details and inclusions in transparent material are easily detected.



**Fig.1**  
Egg lit by an 80 LED ring light

**Fig.2**  
Egg lit by an 80 LED ring light

**Fig.3**  
Egg lit by L.E.S.S. Darkfield illumination

RISK CLASS 0  
EN 62471:2006

EYE-SAFE  
CLASS 1 LASER PRODUCT  
ICE 60825-1 2014-05



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