

JSM 5610LV 扫描电镜的日常维护 And common troubleshooting

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Abstract: In the daily maintenance management of scanning electron microscopes, the environmental factors of the room should be controlled properly, the interior of the mirror should be kept in a high vacuum condition for a long time, and the accessory equipment should be checked regularly to see if it meets the requirements. Explain how to troubleshoot problems such as when the mirror always freezes, and the black screen shows an abnormal image.

Keywords: Scanning electron microscopes; Routine maintenance management; Troubleshooting

中图分类号: TN 16

文献标识码: A

文章编号: 1006 3757(2008)02 0125 02

With the development of science and technology, the use of electron microscopy has increased

(6) regularly check the condition of the water circulation and the water level below the line of fire

The more widespread it is, it has contributed to the technological revolution and, in particular, to the development of nanotechnology

Add purified water immediately. If the circulating water is cloudy and dehydrated, replace it immediately

The electronic microscope is sophisticated and expensive

To prevent clogging and fouling of the circulatory system, which may affect the water circulation system

This requires specialized management, use, maintenance knowledge and assurance

Productivity.

In normal working conditions, better serve scientific research and production. This article

(7) periodically switch on the backscatter electron imaging system, which is not commonly used for electromirrors

针对日本电子的 JSM 5610LV 扫描电镜, 简谈一下 Daily maintenance and troubleshooting of common problems.

Systems, Component Imaging Systems, Topographic Imaging Systems, Stereographic Imaging Systems, etc.

Function system to prevent aging of electrical components. There should be no less time at each turn on

1 日常维护

于 1 h.

(8) 定期检测电镜的 X 射线是否泄漏, 加强防

(1) keep the mirror room clean and dust free, use hand protection such as air conditioning and humidity, and ensure personal safety.

段, 控制好室内环境因素, 使室内温度在 15~25 之间, 湿度在 50% 以下.

2 常见故障的排除

(2) keep the mirror in a certain vacuum for a long time

When a mirror fails, the main part of the fault should be determined first

一般要求在 10^{-5} Torr 以上^[1]. Even the electroglass is not working

Bit or cause, then step by step to maximize the extent of the fault

期间, 也要定期抽真空, 雨季里 5 d 抽一次, 其它季

The problem was eventually identified as the cause of the failure or the specific component, and the question was then asked

This should be done once to prevent the

题解决. 以下是日本电子的 JSM 5610LV 扫描电镜

electromirror cartridge and the internal components of the spectrometer

Rust.

(3) 经常检查机械泵(DP)的油液面,看其液面
Is it at the level of the window level engraved, if it
is at the window level engraved
If mechanical pump is observed, add mechanical
pump oil immediately

窗口油呈茶色,应马上更换机械泵(DP)油.

(4) 定期更换电镜内的扩散泵(RP)油^[2]. Dynamic focus balancing was not enabled during operation

(5) regularly clean the moving diaphragm, sample stage, and electrons inside the barrel
The gun room is sensitive to contamination of parts, ensuring that the electronic light path works properly. In the
During cleaning, the diaphragm is heated with a vacuum sprayer, the sample stage and the

电子枪室用棉球蘸酒精、丙酮 1:1 混合液擦洗.

There are several common troubleshooting methods.

2.1 故障 1

Problem: The screen shows a picture, but the picture is not jittery and blurry
Clear, and the upper and lower interrows are not clear.

Cause: There are many reasons why the image is not clear, in this case

(Dynamic Focus Cor rection) 功能, 电镜产生交变

磁场, 使焦距抖动, 致图像抖动、模糊不清^[3], 且

The upper and lower interrows are not clear.
Solution: Turn off dynamic focus balancing.

收稿日期: 2008 03 14; 修订日期: 2008 04 16.

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2.2 故障 2

Problem: The phone freezes, the focus and magnification keys all fail, and they don't work, especially the tungsten lamp in the mirror, the power switch of the Oh/Ready cannot be switched off.

Cause: The adjustment amplification rate is too fast and the operation is incorrect, the call mirror related procedure is not smooth.

Solution: Switch off the mirror and restart the mirror.

2.3 故障 3

Problem: When the mirror is switched on, the screen does not display a picture!!! Blank screen.

Cause: The filament is broken and does not power on or the brightness and contrast of the screen display are not appropriate^[4].

解决方法: 首先打开电子枪(Gun)图标, 检查钨灯丝好坏^[5](是否通电), 若不通电, 说明钨灯丝烧 If so, replace the filament; If power is applied, adjust the contrast and brightness until the image is displayed and clear.

2.4 故障 4

故障现象: 电镜样品台 Z 轴显示值为零, AFC、ACD、AST 等自动功能无法实施。

原因: 电镜的 EOS 电路板的 A/D 转换器 MP8775AN 功能异常, 无法实施自动功能, Z sensor No output.

解决方法: 更换电镜的 EOS 电路板的 A/D 转换器 MP8775AN.

2.5 故障 5

故障现象: 电镜在实施扫描过程中, 当 SPOT SIZE 数值设置是 16 时, 显示的图象正常; 当 SPOT SIZE 数值设置大于 17 时, 显示的图象抖动, 并且伴

Discharge phenomenon.

Cause: The tungsten filament of the mirror is rapidly burned and appears to be in a state of constant flux, the current loss adjustment of the tungsten filament is adjusted by [6], thus triggering the unstable electron. When the spot size value is set to greater than 17, the primary magnetic lens is unstable in converging the electron beam, which affects the imaging effect.

Solution: Change the tungsten filament of the mirror, and make a series of adjustments to the medium range.

3 Conclusion

Having a high degree of responsibility, doing a good job in the daily maintenance of the mirror, having certain troubleshooting skills, is a basic requirement for the mirror operators. Only by doing this can we better perform the role of electroscopy for scientific research.

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Daily Maintenance and Familiar Faults Clearance of JSM 5610LV

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Abstract: During the daily maintenance and management of SEM , we should better control the factors of the indoor environmental and keep the interior of SEM at a high vacuum state and check the ancillary equipment whether they reach the demands or not termly. Finally, the methods of fault clearance such as halt, black screen and image show abnormality of SEM is introduced in this paper.

Key words: SEM ; maintenance and management; fault clearance

Classifying number: O657. 32

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