

# **Ultra Pure Water (UPW)- System:**

**particle control by online  
liquid particle counters**

System recovery after changing a  
filter cartridge of the high pressure  
rinsing stand HPR

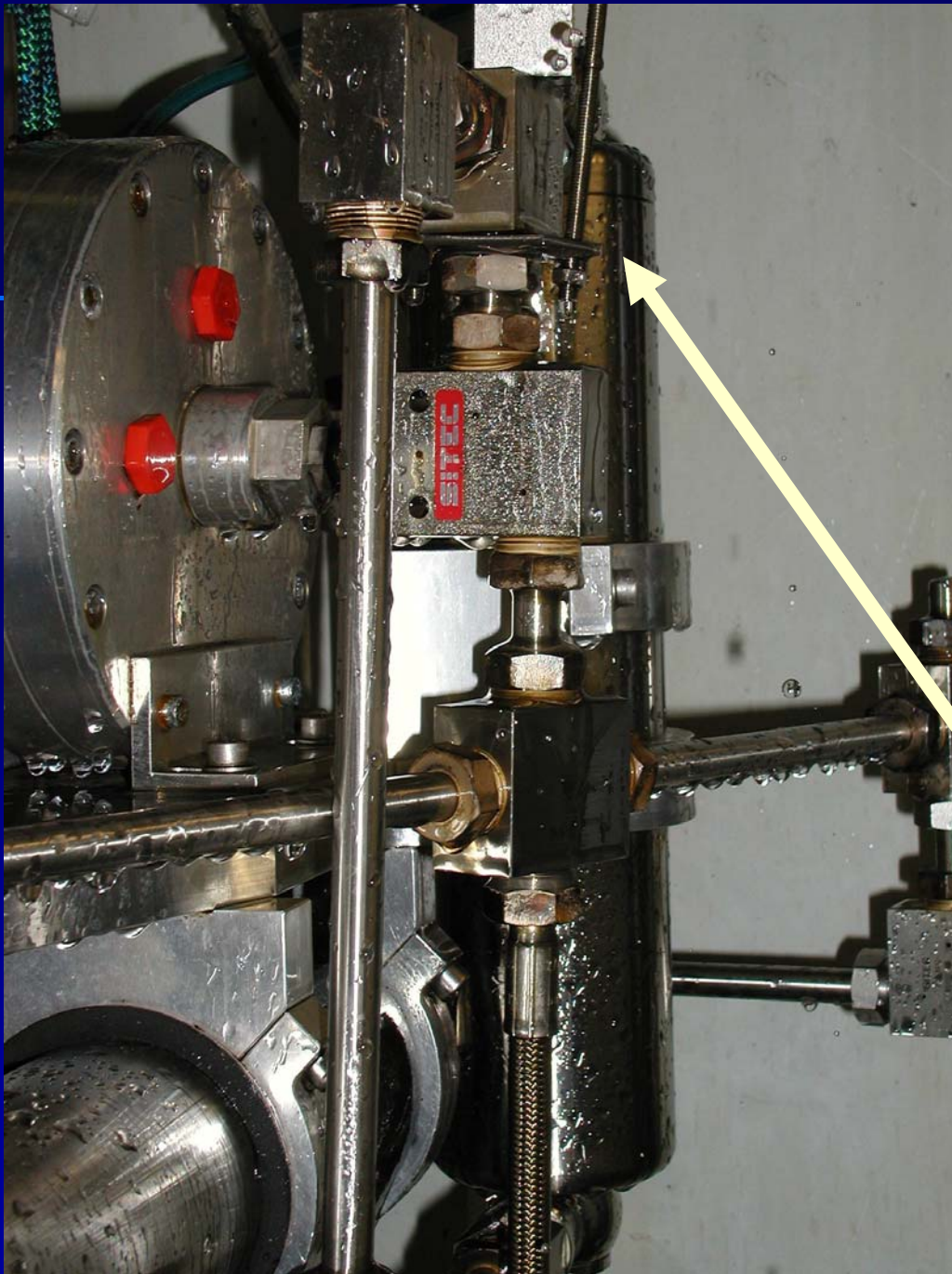
- To minimize time before filter installation to the UPW system a filter cartridge flush station is build up
- This system allows to flush new filter units without contaminating existing clean lines .



**Filter cartridge flush station**

# Sequence:

1. activation of 0.04  $\mu\text{m}$ -filter (alcohol)
2. installation of cartridge into test unit
3. flushing away alcohol / media for activation (to drain line)
4. permanent flushing with maximum volume available for four days
5. dismount and transport to filter housing
6. installation into HPR housing
7. filter flushed by 6 cubic meter UPW for 6 hours before begin particle measurement
8. start up measurement at HPR nozzle head (system pressure is limited to 4 bar, HPR pump is switched off)
9. three days after installation of this filter in the HPR the particle data showed stable values



## Installation in the HPR

electropolished  
stainless steel  
housing for  
filter cartridge

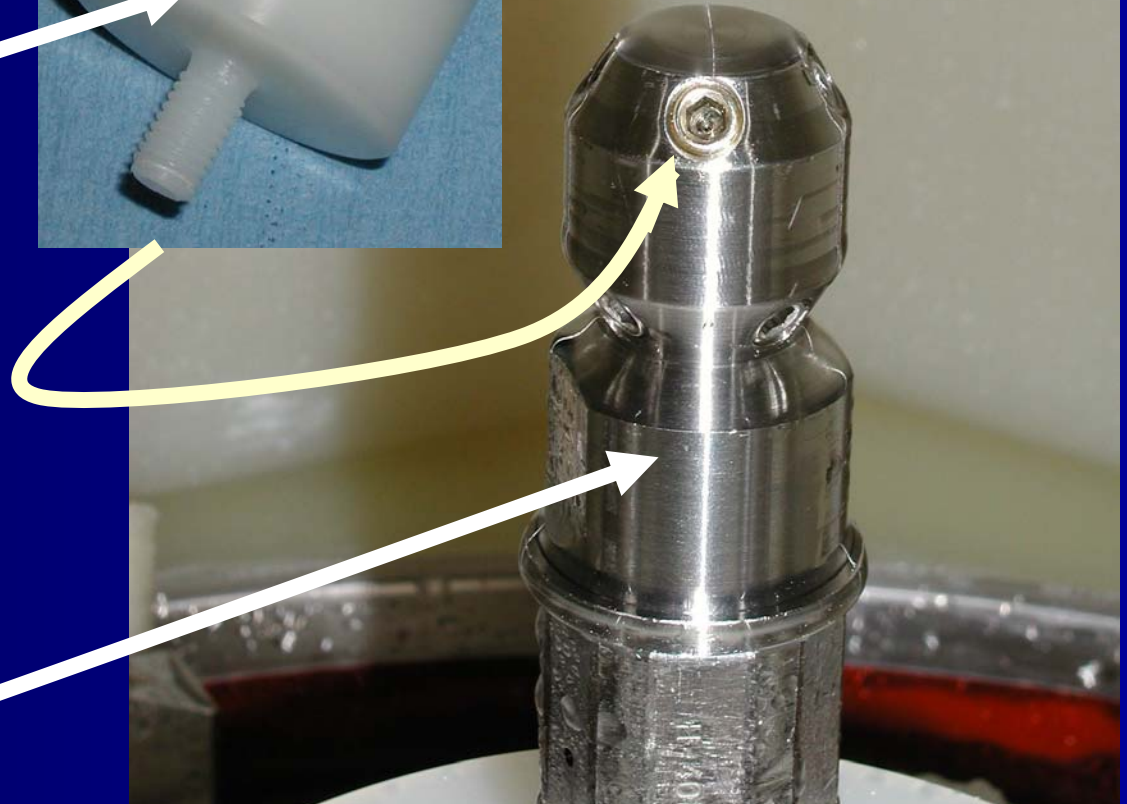


# Performance for particle measurements

adapter

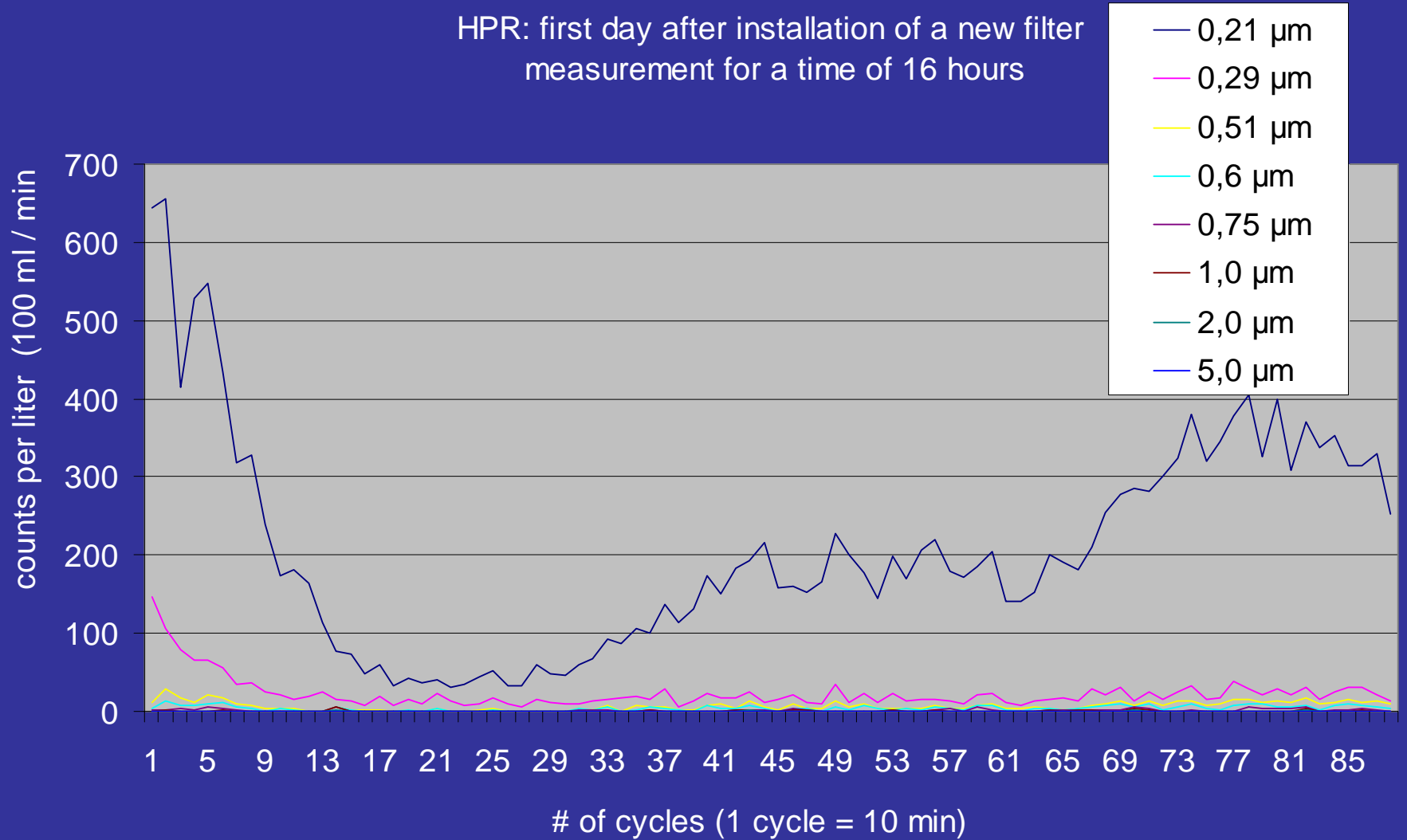


Connection to  
liquid particle  
counter

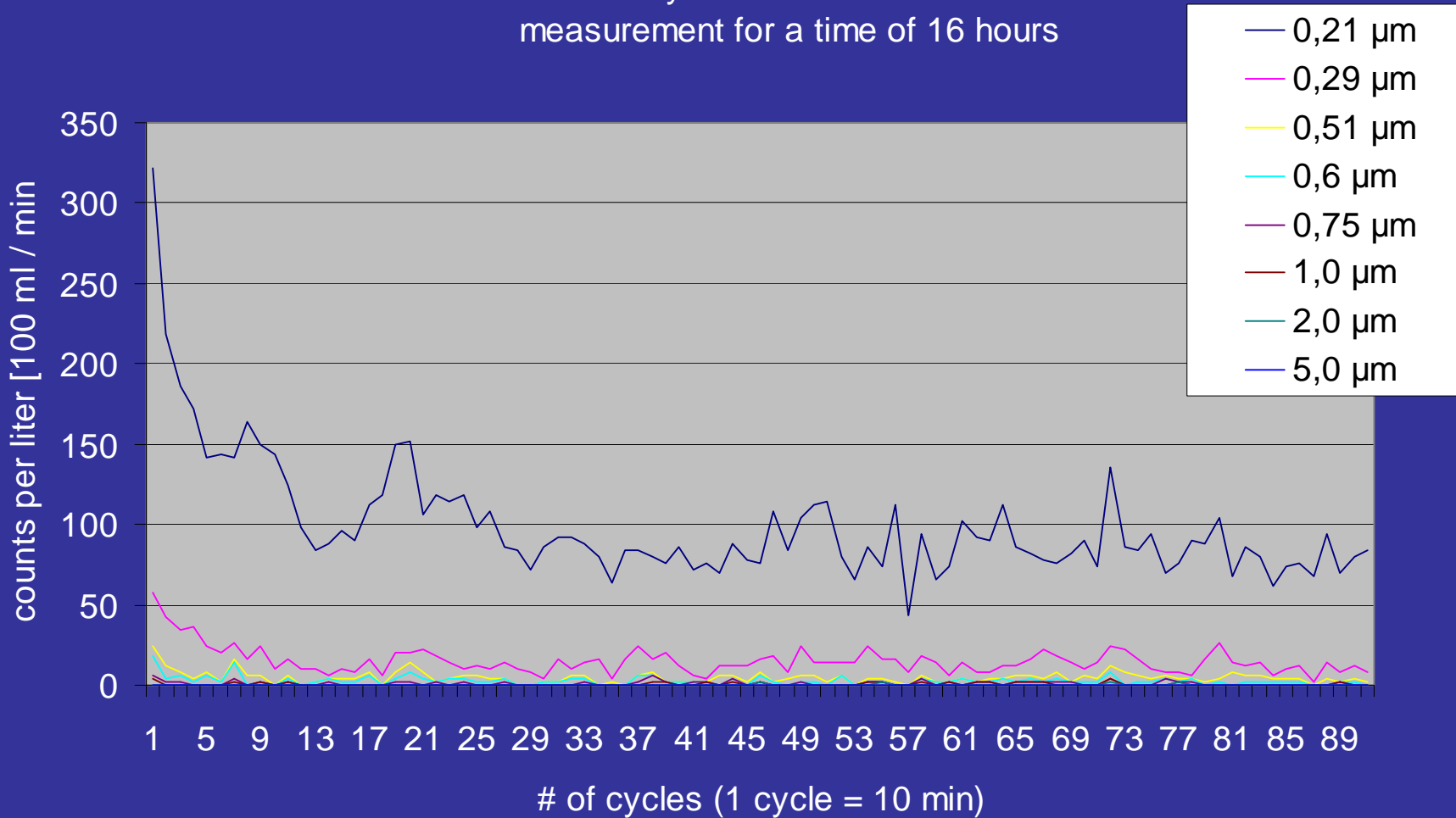


HPR nozzle head

HPR: first day after installation of a new filter  
measurement for a time of 16 hours

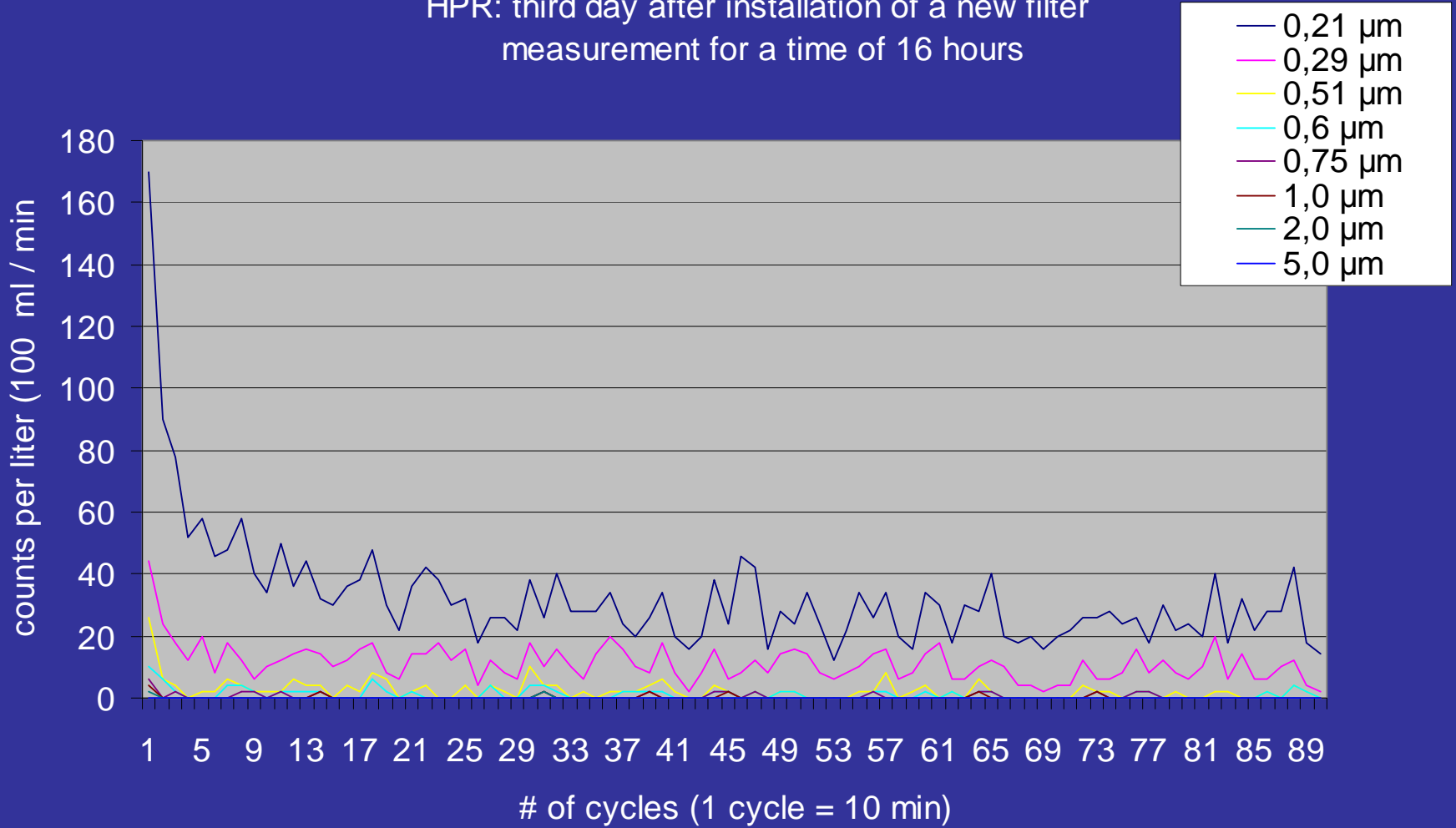


HPR: second day after installation of a new filter  
measurement for a time of 16 hours





HPR: third day after installation of a new filter  
measurement for a time of 16 hours



# Qualification of the HPR filter unit, February 2005

