

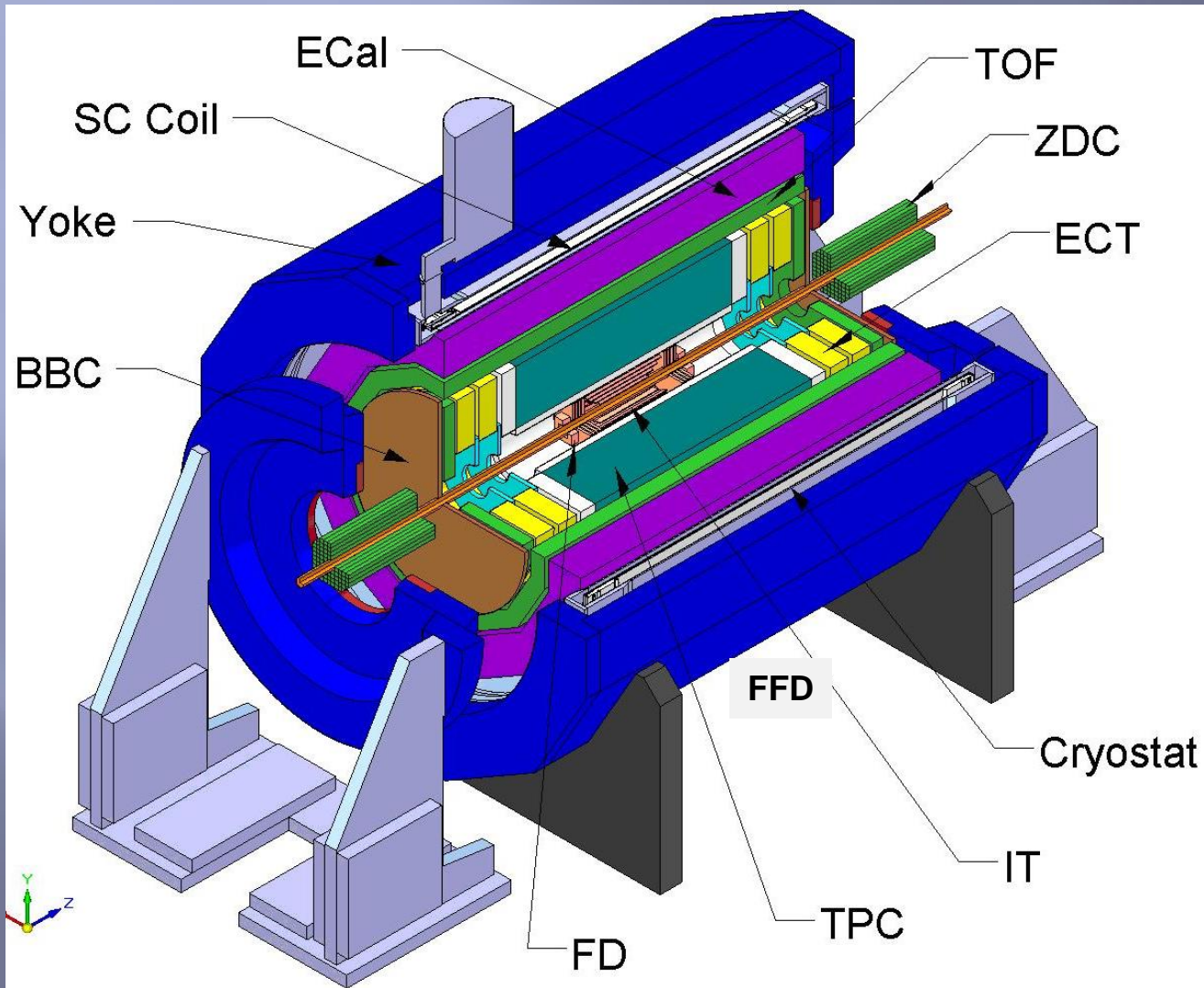


D. Dąbrowski, M. Peryt, K. Roślon

Gas system for MPD Time-of-Flight detector



MultiPurpose Detector (MPD)



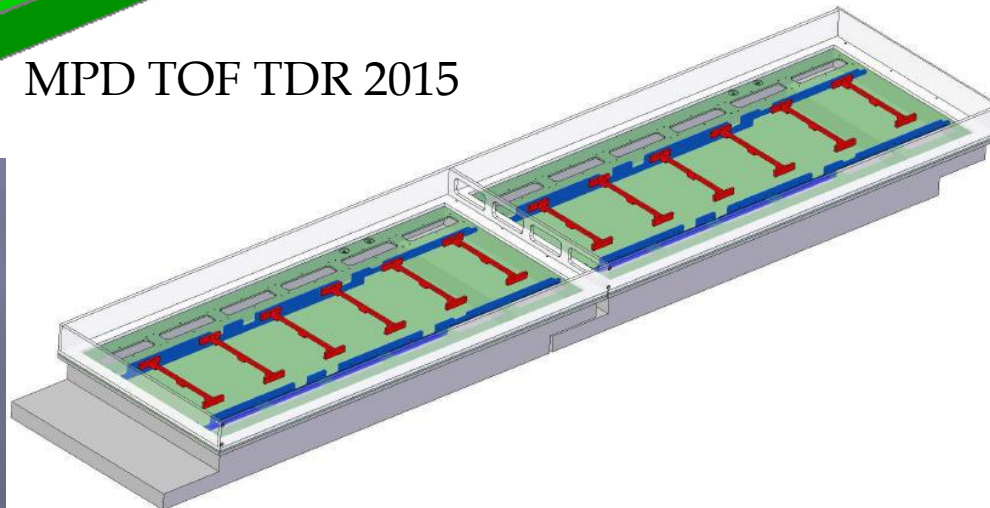
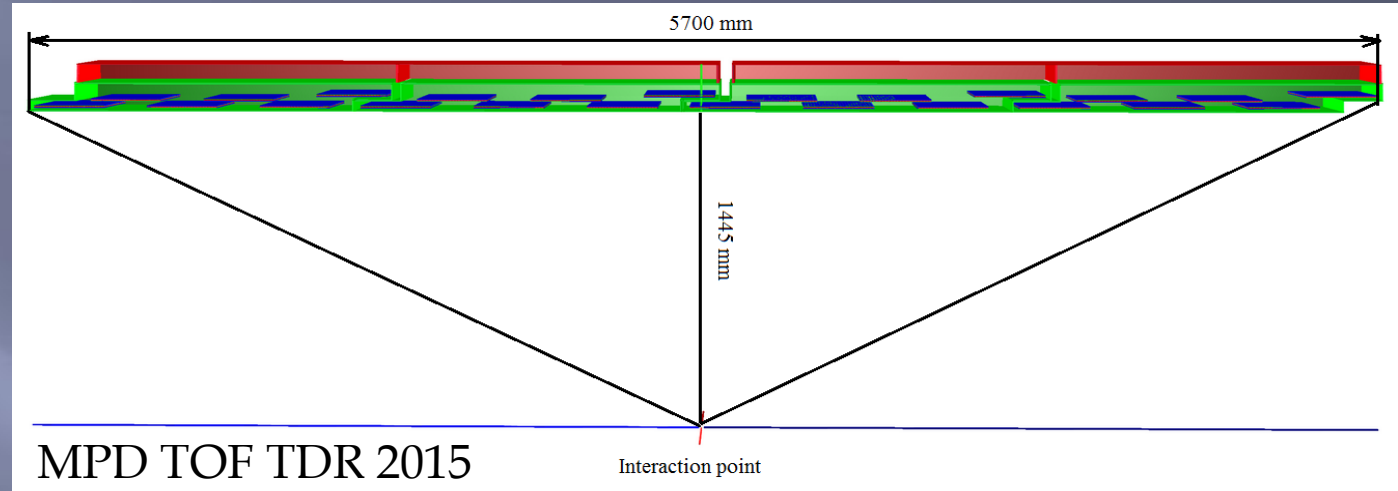
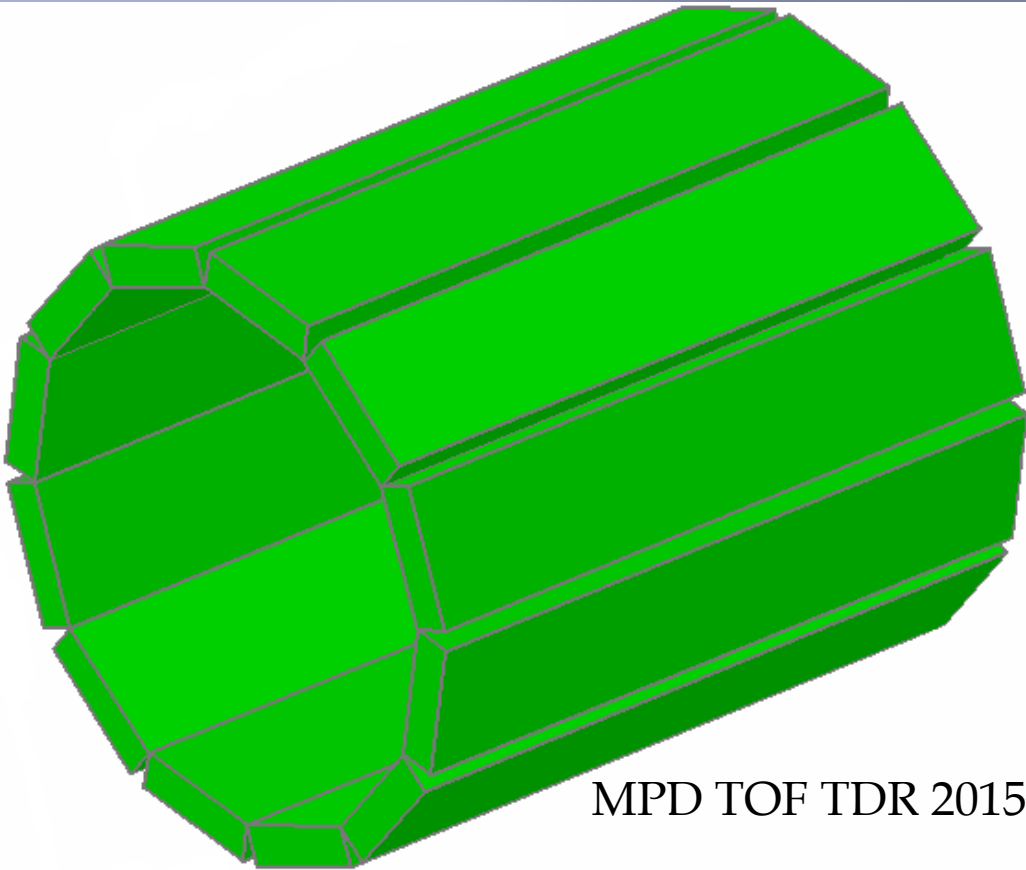
Tracking: *TPC, IT, ECT*

T0, Triggering: *FFD*

Centrality, Event plane: *ZDC*

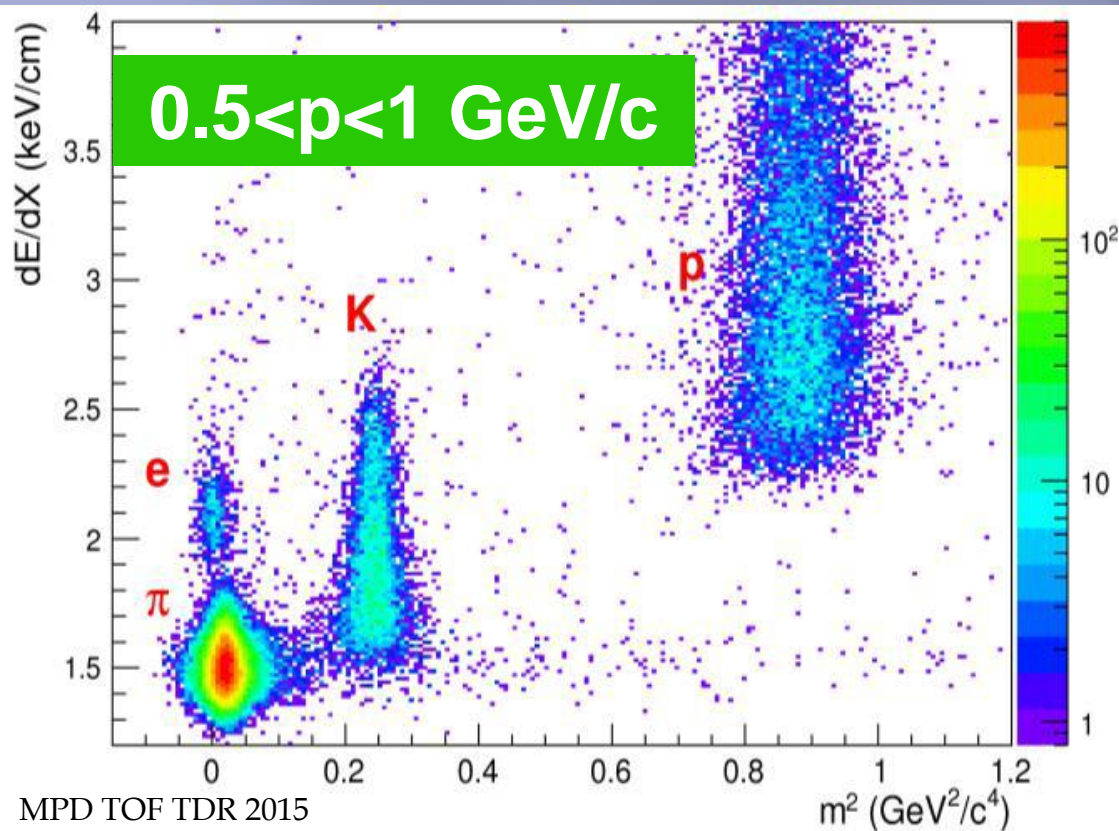
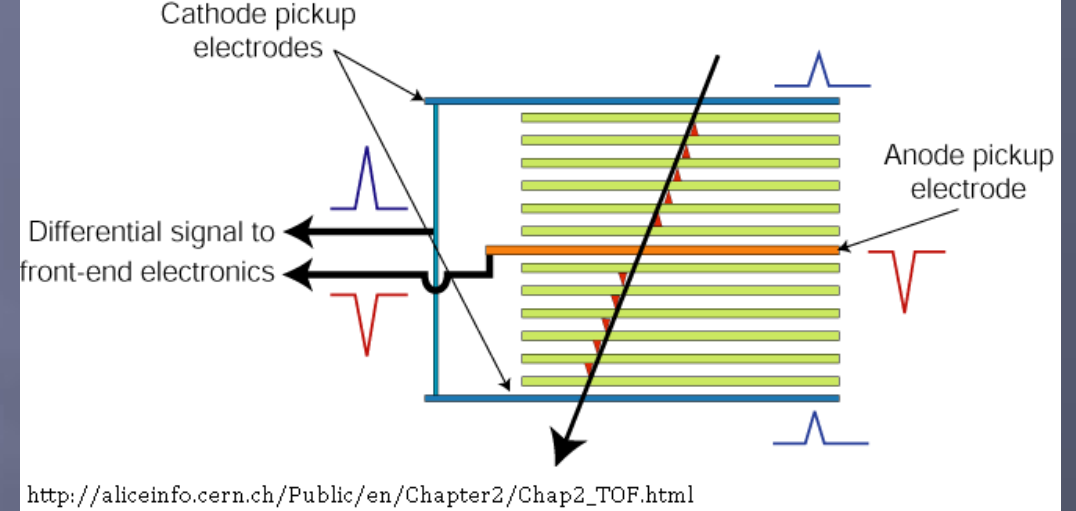
Particle ID: *TOF, ECAL, TPC*

Time-Of-Flight (TOF) detector



How does it work ?

Particle IDentification (PID):

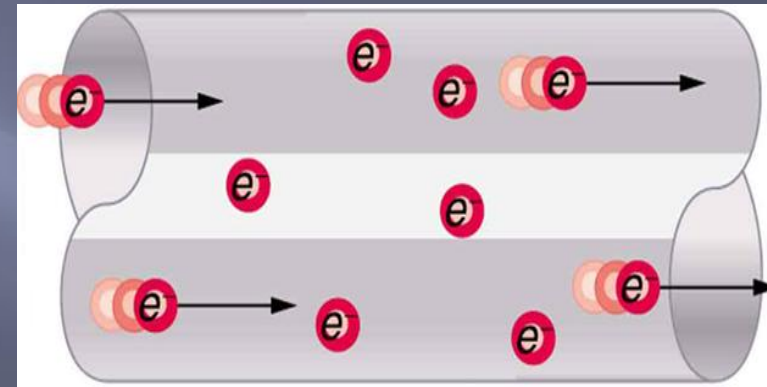
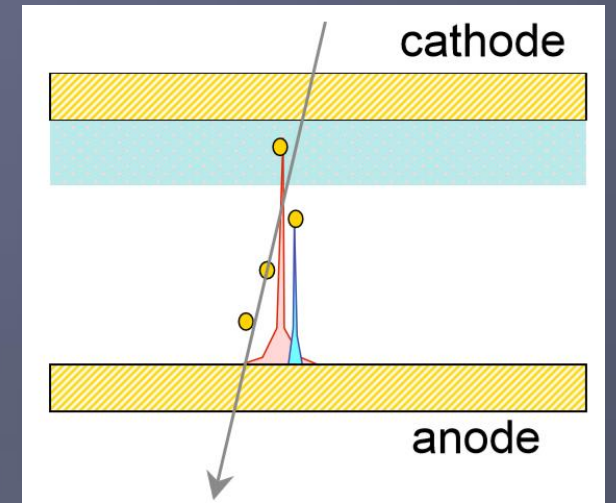


$$m^2 = p^2 \left(\frac{ct^2}{l^2} - 1 \right)$$

Gas mixture requirements:

- Low threshold of avalanches

- Fast (high electrons drift velocity)



- No secondary effects, like photon feedback

- Cheap, Eco-friendly, safe, not ageing

Gas Mixture

90% $C_2H_2F_4$ + 5% $i-C_4H_{10}$ + 5% SF_6



Purity

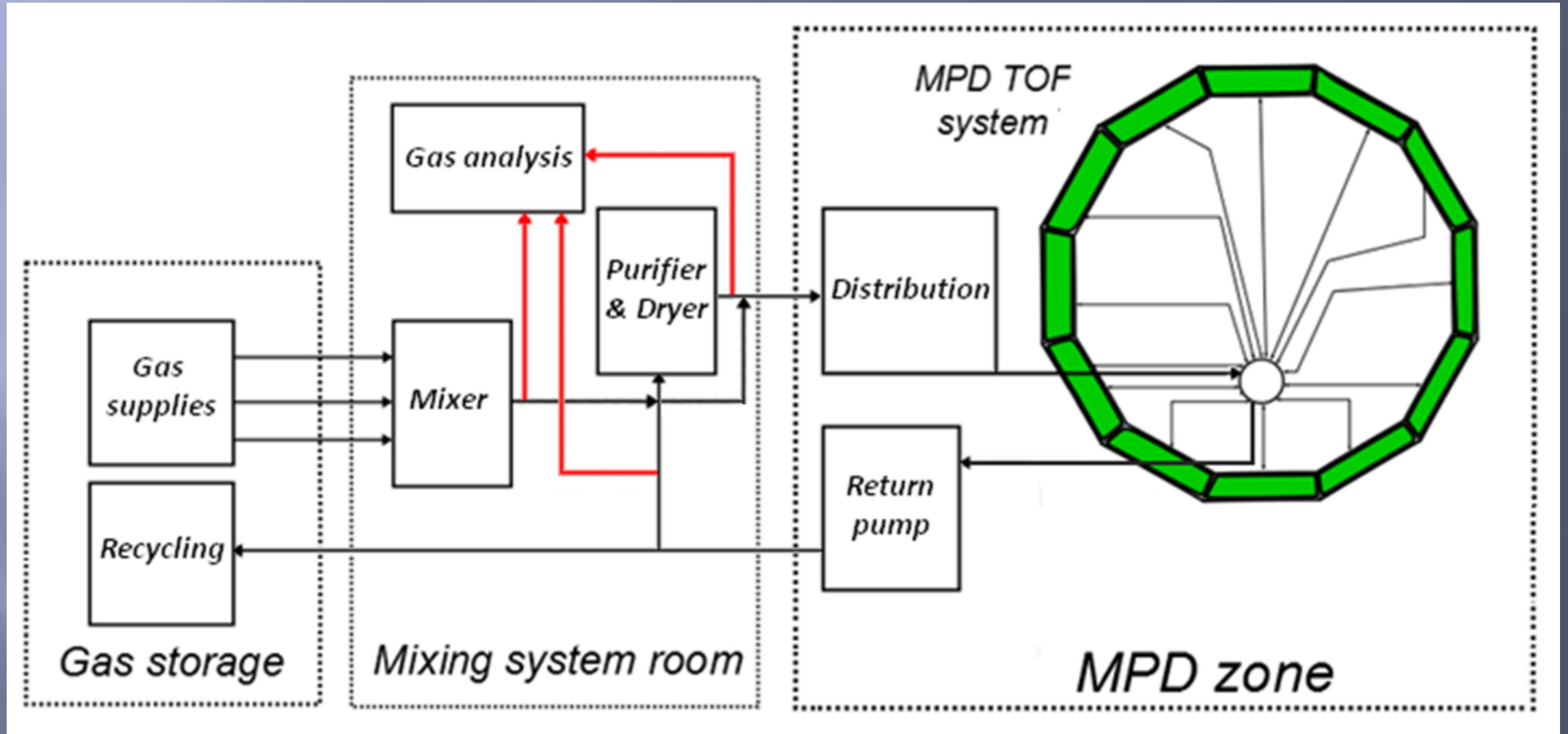
Two effects:

- modification of transport parameters
- electron loss by capture due to electro-negative pollutants

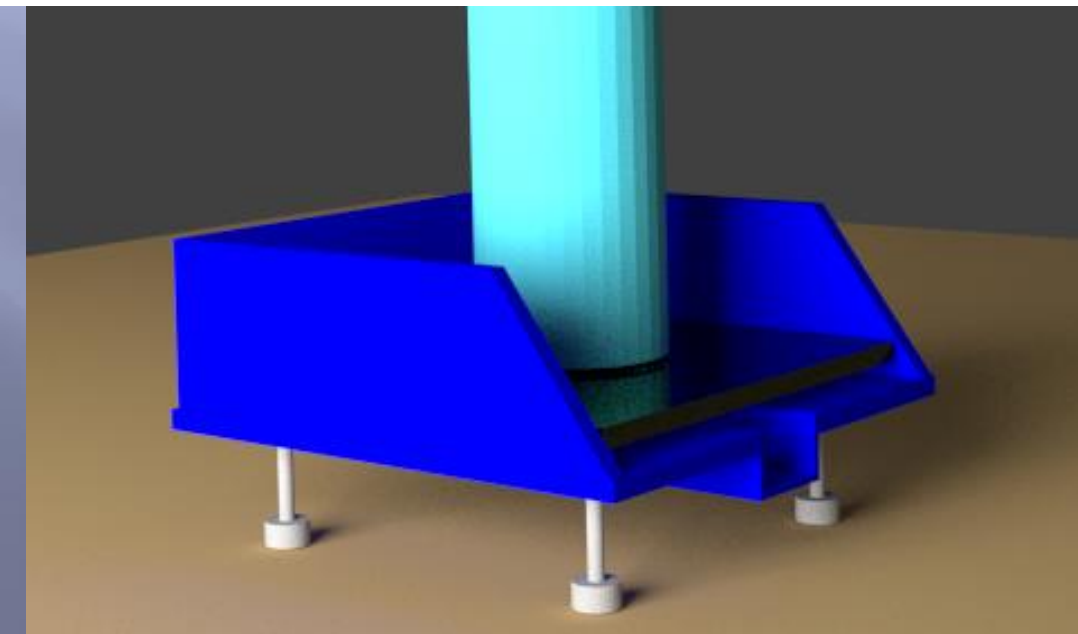
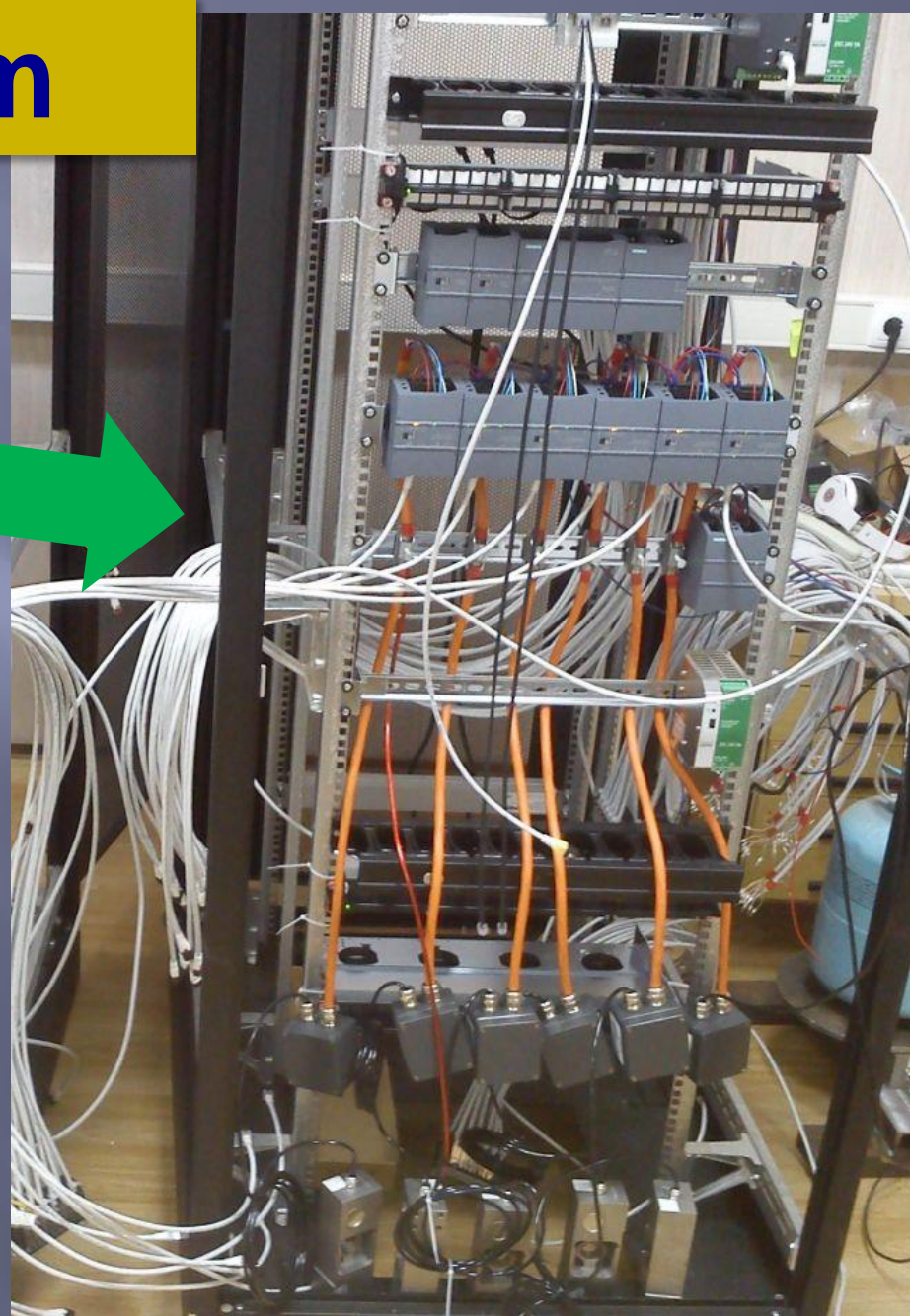
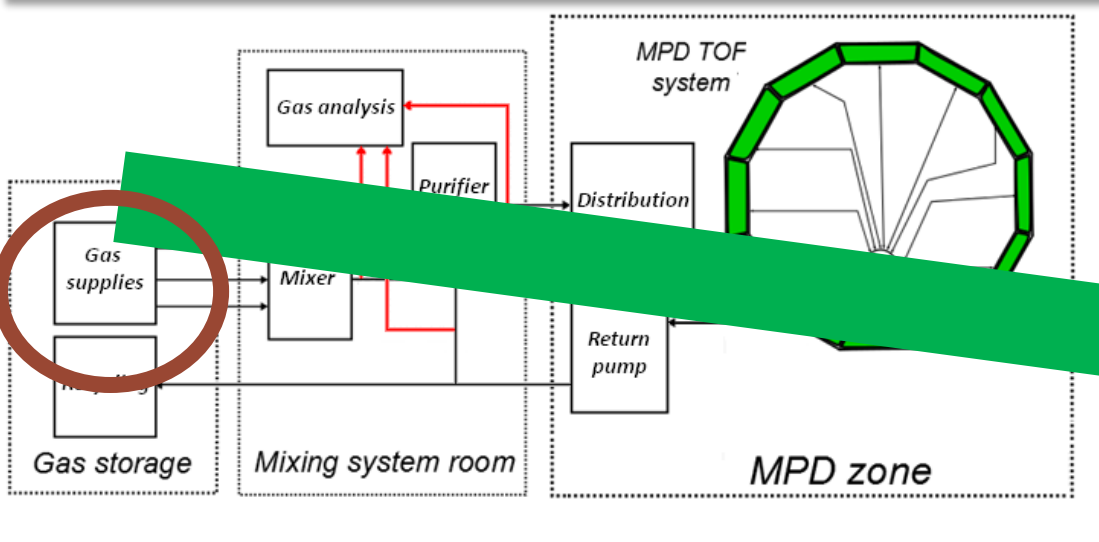
H₂O content: < 100 ppm

O₂ content: < 1000 ppm

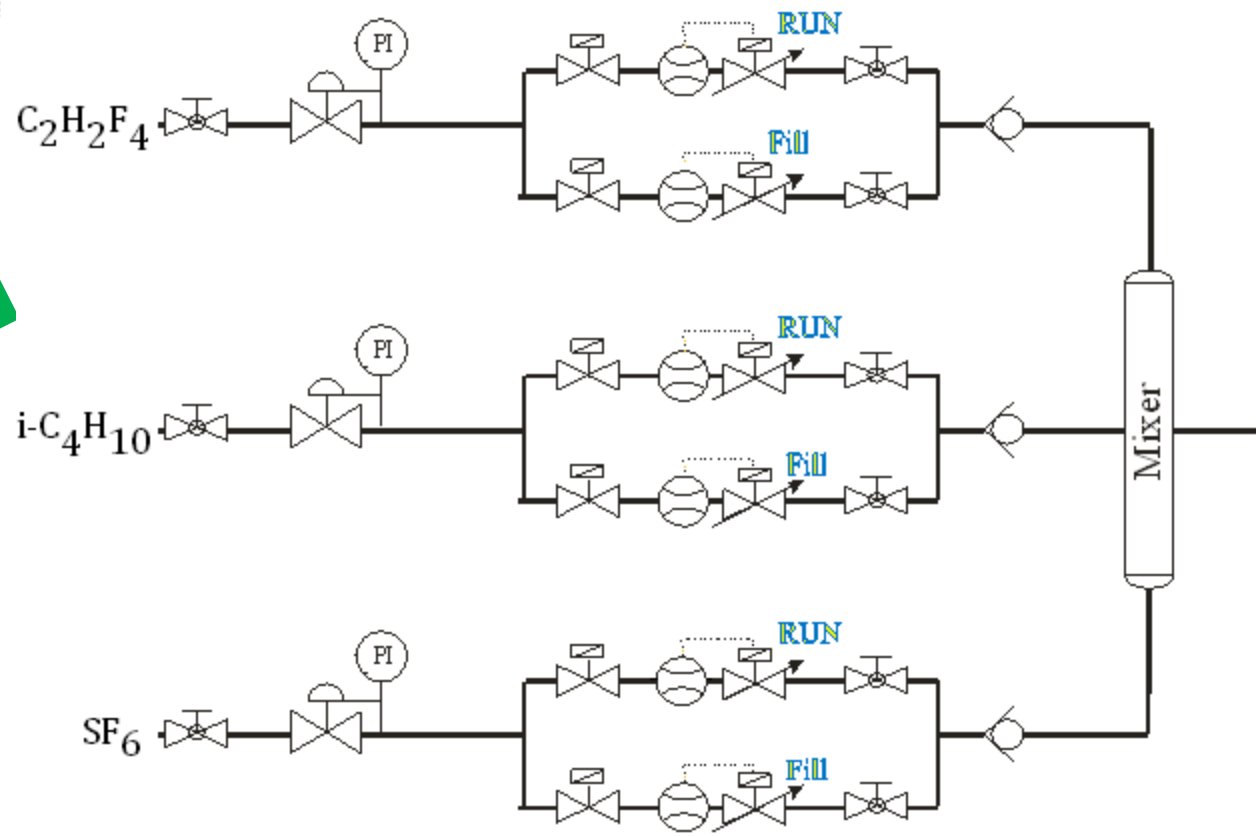
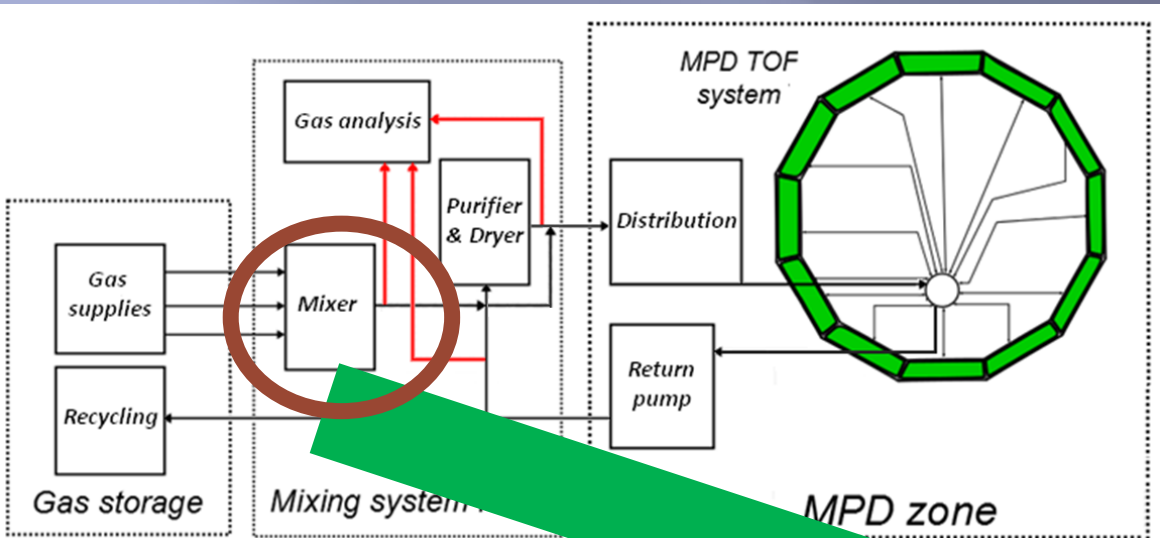
Gas system



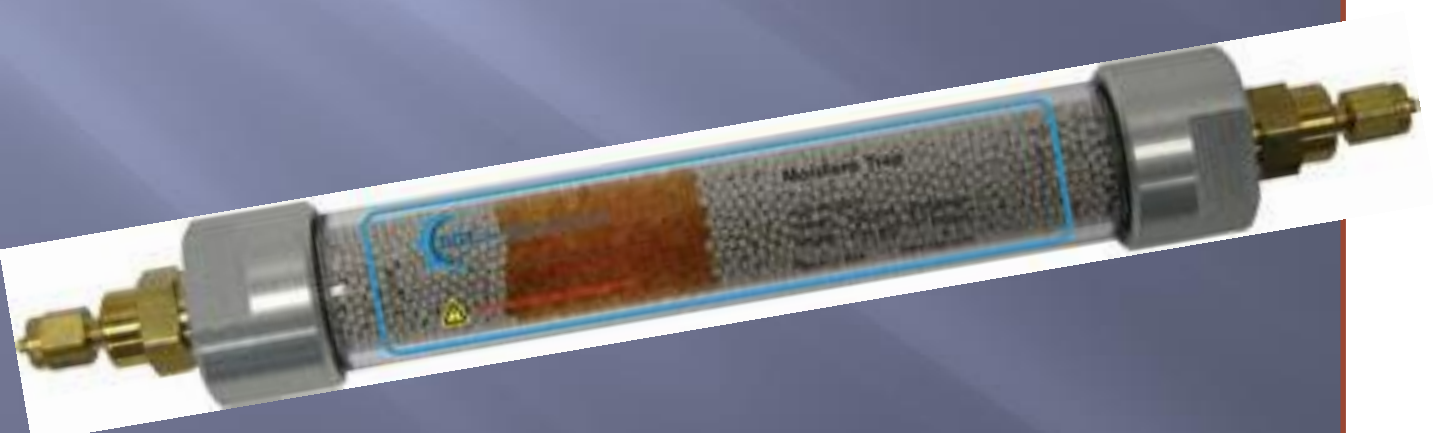
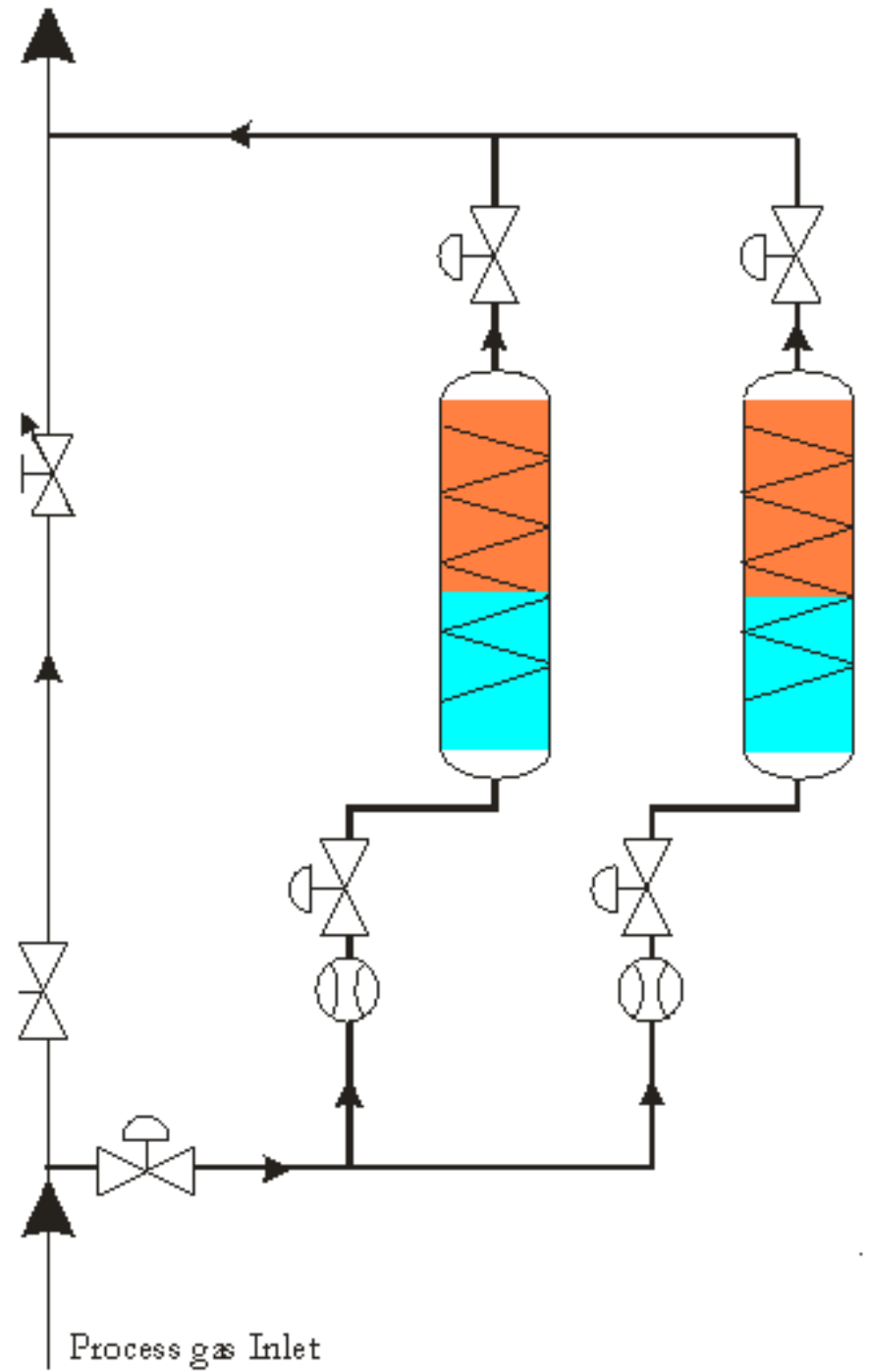
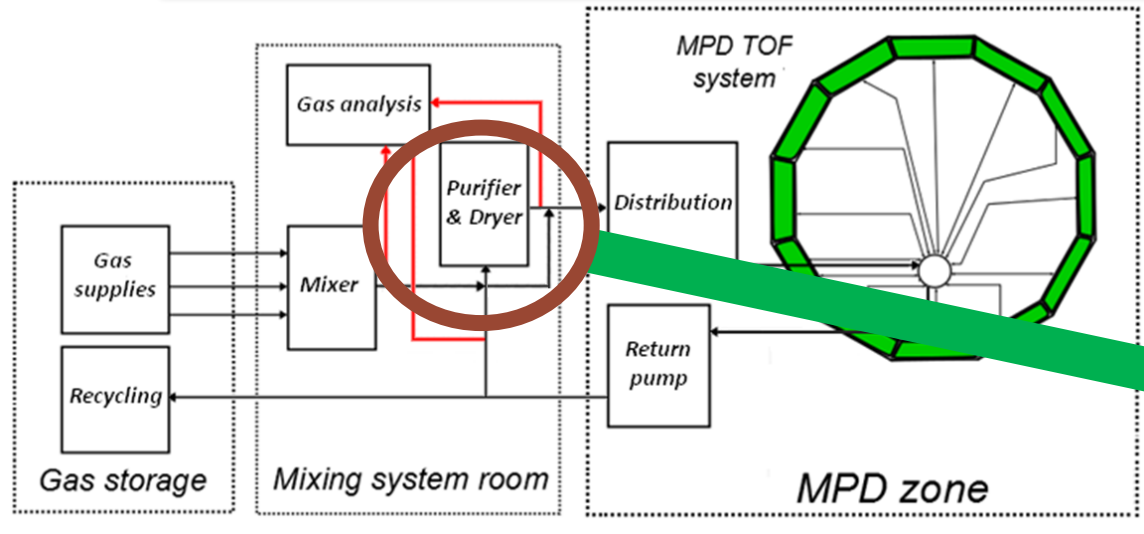
Gas supply system



Mixer



Purification



Control system



SIWATOOL - WP231 - Empty @ 192.168.0.21

File Communication View Tools ?

Online Offline Language Module name 75kg Display Message

factor: 1 X

Value	PC	SIWAREX
Calibration Parameter (DR3)		
Info		
Basic Parameters		
Scale name	kg	kg
Weight unit	B for Gross	B for Gross
Letter for gross weight	none	none
Restriction code	20	20
Minimum weight (in d)	100.0	100.0
Maximum weight	0.1	0.1
Resolution d		
Calibration		
Calibration weight 0	0.0	
Calibration weight 1	100.0	
Calibration weight 2	0.0	
Calibration weight 0 (real)	37049	
Calibration digits 1 (real)	1000000	
Calibration digits 2 (real)	0	
Additional Parameters		
Zero by on	no	
Zero by on while tare	no	
Automatic zero	no	
additive tare	no	
Weight simulation allowed	no	
Decimal point for process values	Rounding after 3 decimal points	
tare maximum (% of max.)	100.0	
Zero limit minus by power on (% of max.)	10.0	
Zero limit plus by power on (% of max.)	10.0	
Zero limit minus (% of max.)	1.0	
Zero limit plus (% of max.)	3.0	
Standstill range (in d)	1.0	
Standstill time (ms)	2000	

main.vi

File Edit View Project Operate Tools Window Help

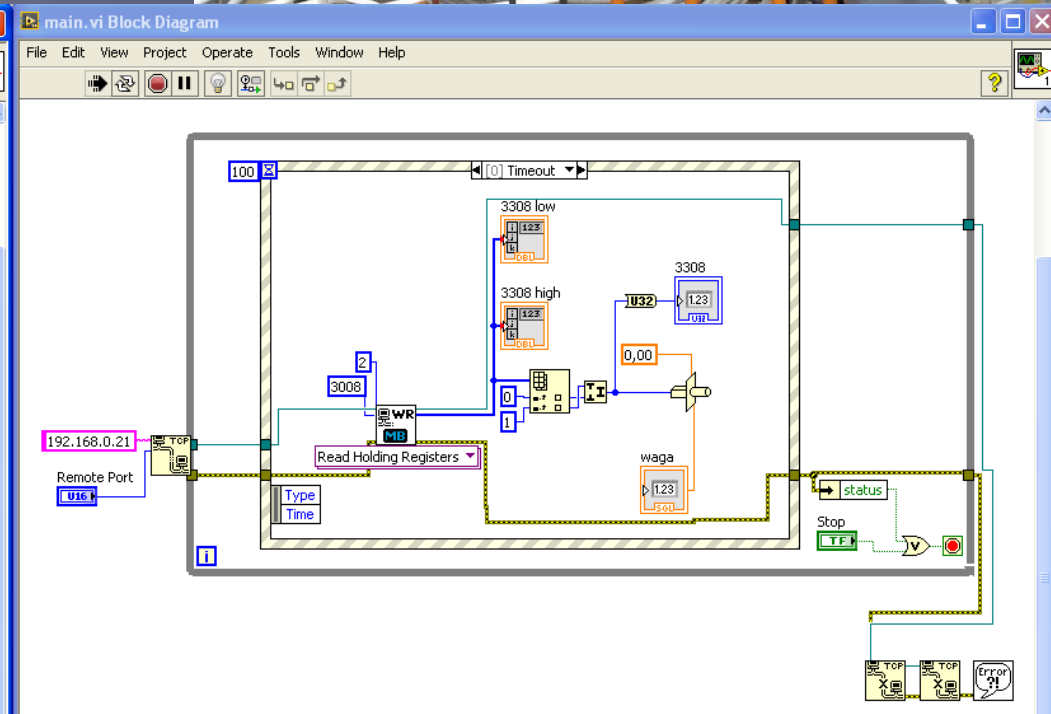
IP Adress Remote Port STOP

192.168.0.21 502

3308 low 3308 high 3308

0 54002 1 16461 1078842098

3,216 kg



**Thank you for your
attention !**