ISIEC - Initial Safety Information on Experiments at CERN

Obligatory, to be filled and sent to the PH-DSO (dso.ph@cern.ch) and a copy to the PS/SPS Physics Coordinator (sps.coordinator@cern.ch) by all new experiments, new test beam users or in case of major modifications of existing equipment

Experiment	COMPASS	Exp.	NA58

DATE	05.05.11
INSTALLATION START and END	
SPOKESMAN / tel	Andrea Bressan, Fabienne Kunne 73746, 76342
GLIMOS / tel	Gerhard Mallot / 163425
Fill in by … (email, telephone)	Gerhard Mallot / 163426

1- LOCATION	*Please indicate where the experiment will run*
Beam / Area / Door	M2 / North Area / 221
Labs at CERN (bdg/room)	888

2-GASES,LIQUIDS,CRYOLIQUIDS *Used in detectors or kept in nearby containers*

Device type	Fluid1+% Fluid2 etc	Volume	Abs. Press.	Max Flow
Si: Distribution box with buffer	liquid nitrogen	100 l	1.8 bar	20 l/h
Si 1-3: beam detectors	liquid nitrogen	1.5 l	1.8 bar	9 l/h
Micromegas (3)	Ne/C2H6/CF4 85/10/5%	12 l	1 bar	12 l/h
DCs (3)	Ar/C2H6/CF4 45/45/10%	1300 l	1 bar	17 l/h
Straws (15)	Ar/CF4/CO2 80/10/10%	1500 l	1 bar	closed circuit
GEMS (27)	Ar/CO2 70/30%	23 l	1 bar	56 l/h
RICH radiator	C4F10 100 %	100000 l	1 bar	closed circuit
RICH MWPC (8)	CH4 100 %	320 l	1 bar	closed circuit
MWPC (14)	Ar/CF4/CO2 74/20/6%	200 l	1 bar	closed circuit
Richwall (1)	Ar/CO2 70/30%	1850 l	1 bar	143 l/h
Muonwall 1 (2)	Ar/CO2 70/30%	1850 l	1 bar	143 l/h
W45 (6)	Ar/CF4/CO2 85/10/5%	8000 l	1 bar	closed circuit
Muonwall 2 (6)	Ar/CH4 75/25%	2280 l	1 bar	300 l/h
Polarised target magnet	liquid He	600l	1 bar	20l/h
Polarised target dilution refrigerator	liquid He	12	0 bar	20l/h

3-OTHERS CHEMICALS *Toxic/Corrosive/Flammable metals, solvents, additives etc. (indicate the quantities)*

frozen NH3 as polarised target material 320 g

4-ELECTRICITY *Used in detectors or kept in nearby containers*

EQUIPMENT

Electric Equipment	Power	if magnet: Field	if magnet: Gap Vol.
SM1 Spectrometer magnet 2500 A	1.4 MW	0.5 T	7.9 m^3
SM2 Spectrometer magnet 5000 A		1.8 T	8.0 m^3
PT superconducting magnet	10 kW	2.5 T	1 m^3
Si: 5 turbo vacuum pumps	5.0 kW		
RichWall: LV	2.8 kW		
MW1: LV for 2 stations	30.0 kW		
MWPC: LV for 11 stations	4.1 kW		
RICH: fast circulation compressor	2.2 kW		
HCAL1: moving motor	1.0 kW		
HCAL1: LV +-6V	0.8 kW		

HIGH VOLTAGE (>1KV)

Detector type	Voltage	Current	Stored Energy	No of HV Channels	Remote shut-off?
Hodoscopes	2400 V	2.5 mA		485	yes
Si	190 V			10	yes
Micromegas	2000 V			8	yes
DC	3000 V			7	yes
Straws	2000 V	1.9 mA	5 J	190	yes
Gems	4000 V	20mA	240 mJ	32	yes
RICH MWPC	2000 V		50 mJ	70	yes
RICH PM	900 V	200 mA		576	yes
MWPC	4200 V	5 µA	22J	25	yes
Richwall	2100 V	5 µA	706 mJ	16	yes
ECAL1 (local/distr.)	2000 V/100 V	0.25 mA/500 mA		1500/1	yes
HCAL1	1700 V	100 mA		580	yes

Muonwall 1	2100 V	5 µA	1,4 J	15	yes
W45	1925 V	< 2.4 mA		24	yes
ECAL2 (local/distr.)	2000 V/100 V	0.25 mA/800 mA		3068/1	yes
HCAL2 (local/distr.)	2000 V/100 V	0.25 mA/25 mA		220/1	yes
Muonwall 2	3000 V		4J	18	yes
SHORT-CIRCUIT I>5 mA for >50V possible anywhere?			no		

POWER dissipated by all electronics, racks, etc.	
On detectors (kW)	
Off detectors (kW)	

Special grounding requirements	

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5-LIFTING AND HANDLING	
Weight of heaviest single piece to install (kg)	magnet installed 400 t
Specially designed handling equipment?	no
For which max. weight?	

6-VACUUM-, PRESSURE- , CRYO-TANK *indicate all tanks, except standard gas cylinders*

Tank	Abs. pressure	Max. preasure	Volume	Weakest part(s) of wall (thickness)
RP-2071 (Cryo) Si Valve Box	0 bar	2 bar	390 l	5 mm

7- IONIZING RADIATION *Beam Intensity, radioact. Sources, depleted uranium, etc.*

muon beams, 160 GeV up to 5*10^7 particles/s

8- NON-IONIZING RADIATION	*Details (class of laser, origin of UV light, average power of microwaves or RF, pulsed or CW, …)*
LASER	see ISI laser forms (2 ECAL-1 Lasers, RICH laser)
UV LIGHT	
MICROWAVES (300 MHz-30 GHz)	70 GHz for polarised target
RADIOFREQUENCY (1-300 MHz)	100 MHz for polarisation measurement in PT

9-OTHERS HAZARD (or remarks)

10-RISK ANALYSIS

11-SPECIALISED SAFETY COURSES OBTAINED *Please indicate certificates, licenses etc.*

12-ANNEX	*if available, please attach the files to your mail*
Electrical layout	
Mechanical design/description	
Other Documents (Conformity, safety tests, etc.)	