

Semiconductor, MEMS / NEMS Laboratory Cleanroom Safety Items and Clothes

Overview

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PLUS FOUR CLEANROOM SAFETY ITEMS AND CLOTHES

Complementary to our equipment supply and related services in the field of semiconductor, MEMS / NEMS production and R&D, we provide a variety of *basic laboratory equipment*.

Safety

Safety is the absence of unacceptable risks. Consequently, all potential risks must be identified, assessed, the relevant level of acceptance defined and continuously reviewed.

For sensitive, valuable devices in the micro- or nanometer regime, the cleanroom is at the centre of research and production. Any contamination by dust, microorganisms, smoke etc. can disturb the sensitive production processes. In addition to product quality, personal safety is a major challenge. Flammable and toxic chemicals in a semiconductor plant are fundamental safety risks for staff and the environment alike.

For safe and secure working conditions, a professional personal protective equipment is required and mandatory. The according security regulations differ from country to country. With respect to the GERMAN working laws incl. the strict safety and security regulations, PLUS FOUR offers the adequate personal protective equipment for working with e.g. flammable and toxic chemicals. The *starter package* includes all necessary items to begin working in the semiconductor laboratory. You are looking for individual solutions? PLUS FOUR will be more than happy to arrange Your personal protective equipment set.

Clean room clothes

A cleanroom has a *controlled* level of contamination that is specified by the number of particles per cubic meter at a specified particle size. But, people are the biggest contamination source. With special clean room clothes the contamination level can be contained. You can benefit from the PLUS FOUR package for clean room clothes. We procure supplies, also special for your demand.

The following table shows the definition of cleanroom classes according to ISO 14644.

Cleanroom Classes ISO 14644-1						
(particles / m ³)						
<i>class</i>	$\geq 0.1 \mu m$	$\geq 0.2 \mu m$	$\geq 0.3 \mu m$	$\geq 0.5 \mu m$	$\geq 1.0 \mu m$	$\geq 5.0 \mu m$
<i>ISO 1</i>	10	2				
<i>ISO 2</i>	100	24	10	4		
<i>ISO 3</i>	1,000	237	102	35	8	
<i>ISO 4</i>	10,000	2,370	1,020	352	83	
<i>ISO 5</i>	100,000	23,700	10,200	3,520	832	29
<i>ISO 6</i>	1,000,000	237,000	102,000	35,200	8,320	293
<i>ISO 7</i>				352,000	83,200	2,930
<i>ISO 8</i>				3,520,000	832,000	29,300
<i>ISO 9</i>				35,200,000	8,320,000	293,000

Besides ISO 14644 other classification standards are common.

DIN EN ISO 14644	US Federal Standard 209b	Cleanroom areas	
ISO Class 3	Class 100	Yellow room	Lithography
ISO Class 4	Class 1,000	White room	Deposition, Methology
ISO Class 5	Class 10,000	Grey room	Peripheral equipment

Safety clothes and consumables for chemical handling (34.185)

Item	Qty	Description	Cat. No.
1	2	pH indicator	8.026 582
2	1	Waste jerry cans small	8.026 583
3	1	Waste jerry cans large	8.026 587
4	2	Protective apron Type A l/xxl - pack of 25	8.026.099
5	1	Protective apron Type B s/m - pack of 25	8.026.100
6	25	Overboots pack of 3 pairs	8.026.101
7	1	Chemical resistant gloves, size 8	8.026.102
8	1	Chemical resistant gloves, size 9	8.026.103
9	1	Chemical resistant gloves, size 10	8.026.104
10	2	Full face gas mask for process application	8.026.128
11	4	Special filter for above	8.026.129
12	20	Protective goggles for spectacle wearers	8.026 584
13	5	Protective goggles	8.026 590
14	1	Chemical Resistant Pump	8.026 592
	1	Pump Head for easy tube exchange	8.026 588
15	1	Acid resistant pump - tube	8.026.113
16	1	Transport trolley for chemicals with shelves	8.026 585
17	2	Storage tray	8.026 591
18	1	Gloves, Cotton jersey	8.026 589
21	1	Fridge, explosion-proof PF PT8	8.026 593
22	1	Chemical Sorbents, high performance, 15.2m x 12cm	8.026 586
23	1	Skin protection cream with beeswax	8.026 594

Starter Set cleanroom clothes for clean room user and guests (34.186)

Item	Qty	Unit	Description	Cat. No.
1	3	pack of 1000	Bouffant cap, white	8.026.114
2	4	pack of 20	Coverall, white, with sib	8.026.115
3	1	pack of 1000	Gloves, NITRIL, size M	8.026.116
4	1	pack of 1000	Gloves, NITRIL, size L	8.026.117
5	1	pack of 1000	Gloves, NITRIL, size XL	8.026.118
6	2	pack of 10	Protective goggles for spectacle wearers	8.026.119
7	1	pack of 10	Protective goggles	8.026.120
8	15	each	Flat hood, white, sizes available: S-XL	8.026.121
9	15	each	Standard Overall, white, sizes available: S-3XL	8.026.122
10	20	each	Standard Coat, white, sizes available: XXS-3XL	8.026.123
11	1	each	Overshoe dispenser	8.026.124
12	1	pack of 1.100	Overshoes PE	8.026.125
13	1	pair	Cleanroom shoes, available sizes: 36-47	8.026.126

Storage boxes for above caps/overalls/overshoes/gloves/glasses (34.186)

Item	Qty	Unit	Description	Cat. No.
14	1	each	Storage for for goggles / glasses	8.026.595
15	1	each	Dispenser Box - 4 chambers e.g. for different sizes of gloves	8.026.105
16	1	each	Dispenser Box for Bouffant caps	8.026.106
17	1	each	Dispenser Box for overshoes	8.026.107
18	1	each	Dispenser Box for overalls	8.026.108

PLUS FOUR DISCLAIMER OF WARRANTY

All information given in this brochure have been added to the best of our knowledge. However, we cannot issue any guarantee concerning the accuracy of the information.

We assume no liability for any hazard for staff, equipment, the processed devices or any environmental damages which might