

Annex 5

Comparison of Personal Protective Equipment Standards

Protective clothing is the Personal Protective Equipment worn by all types of personnel to protect against physical, chemical and biological and other external risks. The chemical protective clothing for protection against biological agents is the one most used during the pandemic.

The chemical protective clothing standards of China are GB 24539 and GB/T 29511. The corresponding standards of Europe are EN 14126 and its cited standards such as EN 14325, EN 14605, ISO 13982. For example, Type 3B chemical protective clothing is the product that meet both the Type 3 requirement of EN 14605 and the requirements of EN 14605.

Comparison of key requirements between Chinese and European standards are listed in Table 5-1 and Table 5-2.

**Table 1 Comparison of key requirements between
EN 14605 and GB 24539-2009**

Country	China	European Union
Product	Chemical protective clothing	Chemical protective clothing (Type 3、 Type 4)
Standard	GB 24539 2009 Protective clothing-Performance requirements of chemical protective clothing	EN 14605 2005+A1 2009 Protective clothing against liquid chemicals —Performance requirements for clothing with liquid-tight (Type 3) or spray-tight (Type 4) connections, including items providing protection to parts of the body only (Types PB [3] and PB [4])

Scope	Chemical protective clothing for occupational personnels of various occupation or emergence responses.		Chemical protective clothing providing liquid-tight (Type 3) or spray tight (Type 4), including items providing protection to parts of the body only (Types PB [3] and PB [4]).
Types	Type 3a		Type 3
	Type 3b		Type 4
	None		PB[3] and PB[4] (Partial PB [3], PB [4])
Product name	3a liquid tight 3b spray tight		3 liquid tight 4 spray tight
Physical property of material	Abrasion resistance	3a : \geq level 3 (>500 cycles)	\geq level 1(>10 cycles) (type 3 same with type 4)

		3b: \geq level 1(>10 cycles)	
	Flex resistance	\geq level 1 (1000 cycles) (type 3a same with type 3b)	\geq Level 1 (1000 cycles) (type 3 same with type 4)
	Flex resistance at -30°C (optional)	None	\geq level 1 (> 100 cycles) (Optional) (type 3 same with type 4)
	Tear resistance	\geq level 1 (> 10 N) (type 3a same with type 3b)	\geq level 1 (> 10 N) (type 3 same with type 4)
	Tensile strength	\geq level 1 (>30N) (type 3a same with type 3b)	\geq level 1 (>30N) (type 3 same with type 4)
	Puncture resistance	\geq level 1 (>5N)	\geq level 1 (>5N)

		(type 3a same with type 3b)	(type 3 same with type 4)
	High and low temperature resistance	70°C@8h , drop of tensile strength ≤30% -40°C@8h , drop of tensile strength ≤30% (type 3a same with type 3b)	None
Chemical resistance of material	Permeation of chemical	Type 3a : ≥ level 3 (60min) (1 among 15 种 designated chemicals) Type 3b : ≥level 1	≥level 1 (10min) (1 among 15 种 designated chemicals) (type 3 same with type 4)

		(10min) (1 among 15 种 designated chemicals)	
	Penetration of liquid under pressure	Type 3a : \geq level 1 (3.5kPa) Type 3b: None	None
	Liquid penetration and repellency	Type 3a: None Type 3b: \geq level 1 (liquid repellency>80%, penetration index<10%)	无
Whole-suit performance	Whole-suit test	Type 3a liquid jet test Type 3b liquid spray test	Type 3 : liquid jet test same with GB-3a Type 4: liquid spray test same with

			GB-3b
	Seam strength	≥level 1 (>30N) (type 3a same with type 3b)	≥level 1 (>30N) (type 3 same with type 4)

Table 2 Key requirements comparison between ISO 13982 and GB 24539-2009、GB /T 29511-2013

Country	China	European Union
Product	Chemical protective clothing against solid particles	Chemical protective clothing against solid particles
Standard	GB 24539 2009 Protective clothing-Performance requirements of chemical protective clothing and	EN ISO 13982-1: 2004 amd1-2010Protective clothing for use against solid particulates - Part 1: Performance requirements for chemical

		GB/T 29511-2013 Protective clothing. Chemical protective clothing against solid particulates	protective clothing providing protection to the full body against airborne solid particulates (type 5 clothing) (Incorporates Amendment A1: 2010)
Scope		Chemical protective clothing for occupational personnels of various occupation or emergency responses- solid particles.	Chemical protective clothing providing protection to the full body against airborne solid particulates (type 5 clothing)
Types		Type 4	Type 5
Physical property of material	Abrasion resistance	3a: \geq level 3 (>500 cycles) 3b: \geq level 1(>10 cycles)	\geq level 1(>10 cycles) (type 3 same with type 4)
	Flex resistance	\geq level 1 (1000 cycles) (type 3a same with type 3b)	\geq level 1 (1000 cycles) (type 3 same with type 4)

	Flex resistance at -30°C (optional)	None	≥level 1 (> 100 cycles) (optional) (type 3 same with type 4)
	Tear resistance	≥level 1 (> 10 N) (type 3a same with type 3b)	≥level 1 (> 10 N) (type 3 same with type 4)
	Tensile strength	≥level 1 (>30N) (type 3a same with type 3b)	≥level 1 (>30N) (type 3 same with type 4)
	Puncture resistance	≥level 1 (>5N) (type 3a same with type 3b)	≥level 1 (>5N) (type 3 same with type 4)
	High and low temperature	70°C@8h , drop of tensile strength ≤30% -40°C@8h , drop of tensile	无

	resistance	strength $\leq 30\%$ (type 3a same with type 3b)	
Chemical protective property of material	Penetration of solid particles	Filtration efficiency of non-oil particles $\geq 70\%$	无
	Hydrostatic pressure	\geq level 1 ($> 1.0\text{kPa}$) (before abrasion) After 100 cycles of abrasion , drop in hydrostatic pressure $\leq 50\%$	无
Whole suit performance	Whole suit performance	Inward leakage $L_{jmn, 82/90} \leq 30\%$, $L_{S, 8/10} \leq 15\%$	Inward leakage $L_{jmn, 82/90} \leq 30\%$, $L_{S, 8/10} \leq 15\%$

	Seam strength	≥level 1 (>30N)	≥level 1 (>30N)
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Note: The comparison provided is only a text comparison of technical information, not as a legal basis for the foreign party to choose Chinese products.