

KEM-SHIELD™ KS400C

Protective Clothing Type 3 4 5 & 6



DESCRIPTION

- › Protect against a variety of harmful chemicals under direct injection pressure (Type 3) and chemicals liquid spray penetration (Type 4).
- › Strong and durable
- › Anti-static
- › Outstanding barrier against various chemicals & acids

FEATURES

- High permeability, reduce the generation of thermal stress.
- Fully elastic cap, ankle and cuff, maximizes comfort and protection.
- Anti-static treatment can help reduce static build-up.

APPLICATION

Biological hazard treatment, acid and alkali chemical treatment, pollution removal, disease

Epidemic treatment, industrial cleaning and maintenance, oil treatment, storage tank cleaning, petrochemical and oil refining applications, sewage purification, protection against radioactive particles in nuclear industry.

HAZARD TYPE

Certain liquid splash, biological hazards, and solid airborne particle protection (Type 3, 4, 5 & 6) Dust, Light Liquid splash, acid and alkalis, chemicals.

VERSION

Three-piece cap, butterfly sleeves, elastic waist, crotch triangle, four-thread sewing.

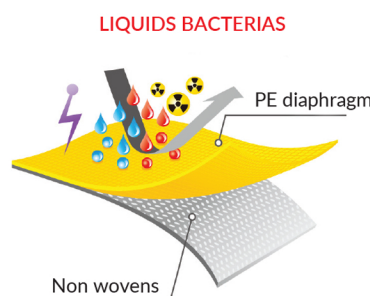
FABRIC

High density polyethylene (HDPE) coated with polypropylene provides effective protection against common inorganic chemicals and certain organic chemicals.

The fabric is strong and durable, and can effectively protect against a variety of chemicals and dust particles.

The fabric colour is high visibility yellow to make the wearer safer.

Size – M, L, XL, XXL



OVER LOCKED SEAM CONSTRUCTION



PHYSICAL PERFORMANCE (EN 14325)

Test	Test method	Result
Abrasion Resistance	EN ISO 12947-2:2016	Class 3
Puncture Resistance	EN 863:1995	Class 2
Flex cracking resistance	EN ISO 7854:1997, Method B	Class 6
Flex cracking resistance at -30° C	EN ISO 7854:1997, Method B	Class 6
Tensile strength	EN ISO 13934-1:2013	Class 2
Tear resistance (Trapezoidal)	EN ISO 9073-4:1997	Class 3
Seam strength	EN ISO 13935-2:2014	Class 4

Classification of abrasion resistance: Class 1 >10rubs; Class 2 >40rubs; Class 3 >100rubs; Class 4 >400rubs; Class 5 >1000rubs; Class 6 >2000rubs. Hydrostatic head method is used for leak tightness assessment after abrasion.

Classification of puncture resistance: Class 1 >5N; Class 2 >10N; Class 3 >50N; Class 4 >100N; Class 5 >150N; Class 6 >250N.

Classification of leak tightness after compression-folding (Schildknecht) flex cracking resistance: Class 1 >500cycles; Class 2 >1250cycles; Class 3 >3000cycles; Class 4 >8000cycles; Class 5 >20000cycles; Class 6 >50000cycles. Hydrostatic head method is used for leak tightness assessment after compression-folding (Schildknecht) flex cracking.

Classification of leak tightness after compression-folding (Schildknecht) flex cracking resistance at -30° C: Class 1 >100cycles; Class 2 >200cycles; Class 3 >500cycles; Class 4 >1000cycles; Class 5 >2000cycles; Class 6 >4000cycles. Hydrostatic head method is used for leak tightness assessment after compression-folding (Schildknecht) flex cracking resistance at -30° C.

Classification of tensile strength: Class 1 >30N; Class 2 >60N; Class 3 >100N; Class 4 >250N; Class 5 >500N; Class 6 >1000N.

Classification of trapezoidal tear resistance: Class 1 >10N; Class 2 >20N; Class 3 >40N; Class 4 >60N; Class 5 >100N; Class 6 >150N.

Classification of seam strength: Class 1 >30N; Class 2 >50N; Class 3 >75N; Class 4 >125N; Class 5 >300N; Class 6 >500N.

PHYSICAL PERFORMANCE (EN 1073-2)

Test	Test method	Result
Abrasion Resistance	EN 530, Method 2	Class 5
Puncture Resistance	EN 863:1995	Class 2
Resistance to blocking	EN 25978	Class 2
Tear resistance	EN ISO 9073-4:1997	Class 4
Seam strength	EN ISO 13935-2:2014	Class 4

1. Classification of abrasion resistance: Class 1 >10rubs; Class 2 >100rubs; Class 3 >500rubs; Class 4 >1000rubs; Class 5 >1500rubs; Class 6 >2000rubs. Visual inspection method is used for leak tightness assessment after abrasion.

2. Classification of puncture resistance: Class 2 >10N; Class 3 >50N; Class 4 >100N.

3. Classification of blocking resistance: Class 1 blocking; Class 2 no blocking.

4. Classification of tear resistance: Class 1 >2N; Class 2 >10N; Class 3 >20N; Class 4 >40N; Class 5 >80N; Class 6 >150N.

5. Classification of seam strength: Class 1 >30N; Class 2 >50N; Class 3 >75N; Class 4 >125N; Class 5 >300N.



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RESISTANCE TO PERMEATION BY CHEMICALS (TYPE 3 TYPE 4)

Chemical	Test method	Result
40% Sodium Hydroxide (Fabric)	ISO 6529:2013 Method A	Class 6
40% Sodium Hydroxide (Taped Straight Seam)	ISO 6529:2013 Method A	Class 6
30% Sulphuric Acid (Fabric)	ISO 6529:2013 Method A	Class 6
30% Sulphuric Acid (Taped Straight Seam)	ISO 6529:2013 Method A	Class 6
36%~38% Hydrochloric Acid (Fabric)	ISO 6529:2013 Method A	Class 4
36%~38% Hydrochloric Acid (Taped Straight Seam)	ISO 6529:2013 Method A	Class 5
O-Xylene (Fabric)	ISO 6529:2013 Method A	No Classification
O-Xylene (Taped Straight Seam)	ISO 6529:2013 Method A	No Classification

Classification of permeation resistance by normalized breakthrough time: Class 1 > 10min; Class 2 > 30min; Class 3 > 60min; Class 4 > 120min; Class 5 > 240min; Class 6 > 480min

Normalized breakthrough time (min) classification at normalized permeation rate of 1,0µg /(cm²*min) is based on EN 14325:2004

REPELLENT BY CHEMICAL RESULTS (TYPE 6)

Chemical	Test method	Result
30% Sulphuric Acid	EN ISO 6530:2005	Class 3
10% Sodium Hydroxide	EN ISO 6530:2005	Class 3
O-Xylene	EN ISO 6530:2005	Class 3
Butan-1-ol	EN ISO 6530:2005	Class 3

Classification of repellent to liquids: Class 1 >70%; Class 2 >80%; Class 3 >90%.

Classification is according to EN 14325:2018

RESISTANCE TO PENETRATION OF CHEMICAL RESULTS (TYPE 6)

Chemical	Test method	Result
30% Sulphuric Acid	EN ISO 6530:2005	Class 3
10% Sodium Hydroxide	EN ISO 6530:2005	Class 3
O-Xylene	EN ISO 6530:2005	Class 3
Butan-1-ol	EN ISO 6530:2005	Class 3

Classification of resistance to penetration by liquids: Class 1 <10%; Class 2 <5%; Class 3 <1%

Classification is according to EN 14325:2018



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PRODUCT WHOLE SUIT TEST PERFORMANCE LEVELS

Standard	Result
Type 3: EN 14605:2005+A1:2009, Protective clothing against liquid chemicals	Pass

Remark:

1. All suits shall pass the test, i.e. the total area on any one undergarment of each suit shall be less than or equal to three times the total calibrated stain area.
2. Test spots include integral connections to the chemical protective clothing: including all different types of joins, seams, seam crossing and covered or uncovered zippers. E.g. crotch seam, back waist seam, front cross seam, front zipper, nape cross seam and armhole cross seam.

Comment: The submitted samples complies with the requirements of EN 14605:2005+A1:2009

Clause 4.3 whole Suits Test for Type 3

Whole suit test methods for type 3, Jet test EN ISO 17491-3:2008

Type 4: EN 14605:2005+A1:2009, Protective clothing against liquid chemicals	Pass
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Remark:

1. All suits shall pass the test, i.e. the total area on any one undergarment of each suit shall be less than or equal to three times the total calibrated stain area.

Comment: The submitted samples complies with the requirements of EN 14605:2005+A1:2009

Clause 4.3 whole Suits Test for Type 4

Whole suit test methods for type 4, High level spray test EN ISO 17491-4:2008 method B

Type 5: EN ISO 13982-1:2004/A1:2010, Protective clothing against solid particulates	Pass
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Type 5: Chemical Protective Clothing shall meet at least the following requirements: $L_{jmn,82/90} \leq 30\%$
 $L_{S,8/10} \leq 15\%$

Whole suit test methods for type 5, Particle inward leakage EN ISO 13982-2:2004

Type 6: EN 13034:2005+A1:2009, Protective clothing against light spray/splash proof	Pass
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"All suits shall pass the test, i.e. the total area on any any one undergarment of each suit shall be less than or equal to three times the total calibrated stain area."

For this suit type, no leakage staining was observed on the dosimeter suit for any of the three suit tested.

Whole suit test methods for type 6, Low level spray test ISO 17491-4:2008 method A

EN 1073-2:2002	Class 1
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Requirement: Total Inward Leakage

Class	Mean value of inward leakage at the three sampling positions inside the suit during exercise of		Nominal protection factor
	one activity (TILE) %	all activity (TILA) %	
3	0.3	0.2	500
2	3	2	50
1	30	20	5



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TYPE 3-B



TYPE 4-B



TYPE 5-B



TYPE 6-B



EN 1073-2



EN 1149-5



EN 14126

TEST METHOD

TYPE 3 EN 14605 Liquid Tight - which can help to protect against strong and directional jets of a liquid chemicals.

TYPE 4 EN 14605 Spray Tight - which can help to protect against the splashing of light chemical liquids.

TYPE 5 EN ISO 13982-1 Dry Particle Suits for protection against hazardous dusts and any dry particles.

EN 1149-5 fabric has antistatic property.

EN 1073-2 Protective clothing against particulate radioactive contamination.

EN 14126 Protective clothing can resist against biological hazards and infective agents.

EN 14126 provides protection against harmful infectious substances.

EN 14126 biological hazard and infectious agent test was conducted.



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