

Evaluation Report on Cleanliness test by Procheck E-W

1. Comparison with ATP

1) Test Method

Samples are prepared by step dilution of meat peptone and bovine serum albumin by sterile saline solution. The lowest concentration is same as detection limit of Procheck E-W, 0.02mg.

2) Result

Test results are compared with ATP method :

Table 1: Protein concentration by ATP (RLU)

sample concentration	1.6	0.8	0.16	0.08	0.04	0.02
BSA	98	66	33	35	39	33
meat peptone	81,465	71,595	34,706	18,805	9,570	6,306

Table 2: Comparison with Procheck EW and ATP

	Prochck- E-W	ATP
measuring object	Protein	bacterial detection (concentration $\geq 10^4$ /ml)
reaction time	immediately	10 seconds (measurement time)
determination	visually check change of reagent color	by measurement devise
individual difference	yes	no
inhibition by residual detergent	yes by residual amount	no
initial cost	no	need to purchase measurement devise
running cost	JPY15.00	JPY270.00

2. Effect of residue of detergent/disinfectant

As Procheck E-W is often used at food manufacturing site, effect of detergent/disinfectant residue used for cleanliness of such site is tested.

Table 3: Effect of detergent and disinfectant to Procheck E-W

	0% dilution	50% dilution	
1. dish detergent	blue	pale blue	product original color
2. oxidative bleach (powder)	dark blue	dark blue	blue
3. chlorine bleach (liquid)	decoloring (white)	decoloring (white)	product original color
4. detergent for gentle wash	weak decoloring	weak decoloring	
5. disinfectant (chlorhexidine gluconate)	blue	blue	pale blue
6. disinfectant (benzalkonium chloride)	pale blue	pale blue	

- ① dish detergent
- ② oxidative bleach
- ③ chlorine bleach
- ④ detergent for gentle wash
- ⑤ disinfectant (chlorhexidine gluconate)
- ⑥ disinfectant (benzalkonium chloride)

3. Removal of pigmentation after using Procheck E-W

Procheck E-W uses pigment as reactive substrate, it is possible that stain remains after use. It is tested which reagent/methods are useful for deplete such stains.

Table 4: depleting agent and its effect

depleting agent	concentration	effect	comment
chlorine disinfectant (sodium hypochlorite)	6% chlorine	deplete completely	dilution is necessary
	1000ppm	not distinguishable by 2-3 times of use	dilution is necessary
baking soda	add vinegar	deplete	difficult to remove residue of baking soda
sodium acid carbonate	50%	deplete by 2-3 times of use	
	10%	not distinguishable by 2-3 times of use	
multipurpose detergent	0.2%	not distinguishable by 2-3 times of use	higher efficiency with hot water
melamine sponge	moistening with water	not distinguishable by 2-3 times of use	higher safety (without chemicals)

- ① chlorine disinfectant (sodium hypochlorite)]
- ② baking soda
- ③ sodium acid carbonate
- ④ multipurpose detergent
- ⑤ melamine sponge