"zero clear"DATA

■HARDNESS TEST

Test Item	Test Result
Pencil hardness	More than 9h

●Testing body/Industrial Res. Inst. Aichi Prefect.

■ABRASION RESISTANT TEST

Test Item	Test Result
Wear resistance inner surface coating film (Number of iterations of the wear=10,000 cycles)	off.without the abrasion

- Testing body/(Foundation of Japan)
- Metal Household Inspection Center

 •A method of testing/JIS S2010「Aluminium sheet wares」
- Placed parallel to the Scotch surface of a commercial sponge scourer, Manually move the front-rear direction by using a weight of 280g

■HEAT TEST

Test Item	Test Result	
Electric furnace (Ambient temperature)	500°C	

 Testing body/Aichi Prefecture Industrial Technical Research Institute

■MEASUREMENT OF VOLUME RESISTIVITY

Test Item	Test Result	
Measurement of volume resistivity	2.3~4.8×10 ¹¹ (Degree corresponding to the epoxy resin)	

Testing body/JFE Techno-Research Corporation

■HYGENIC TEST

	Test Item	Test Result	
Diss	Lead	Not be eluted	
Dissolution	Cadmium	Not be eluted	
	Heavy metals	Below the limit	
Test	Potassium permanganate consumed	Below the limit of 1ppm	

- Testing body/(Foundation of Japan)
 Metal Household Inspection Center
- ●A method of testing/IPC-ES

■ANTIBACTERIAL TEST

Test Item	Intial	24 hours
E. coli	1.0×10 ⁵	<10 (No detection)
St. aureus	1.1×10 ⁵	<10 (No detection)

- ■Testing body / Kyoto Institute of Microbiology
- A method of testing/JIS Z 2801 Film adhesion method

■COMBUSTION QUOLITY TEST

Test Item	24 hours	
Combustion quality	Incombustibility	
Melt drip resistance	smooth	

Testing hody

Japan Railway Vehicle Mechanical Engineering Association

A method of testing/Combustion test

■LIQUID TEST

Concentrated hydrochloric acid (35%) Concentrated sulfuric acid (98%) Concentrated nitric acid (60%) Aqua regia Concentrated hydrochloric acid+ Concentrated sulfuric acid (1:1) Concentrated nitric acid (1:1) Concentrated sulfuric acid (1:1) Concentrated sulfuric acid (1:1) Acetic acid (20%) Phosphoric acid (85%) Hydrofluoric acid (46%) Perchloric acid (60%) Saturated solution of sodium hydroxide Aqua ammonia (25%) Saturated solution of chromic acid Mixed acid solution of ferric chloride Carbon tetrachloride Petroleum benzine Methyl acetate Ethyl alcohol Chloroform Acetone Xylene Worcestershire sauce Soy sauce Grilled meats sauces Mayonnaise Ketchup Cooking oil	Test Solution	Judgment		
Concentrated nitric acid (60%) Aqua regia Concentrated hydrochloric acid+ Concentrated sulfuric acid (1:1) Concentrated nitric acid (1:1) Concentrated sulfuric acid (1:1) Acetic acid (20%) Phosphoric acid (85%) Hydrofluoric acid (46%) Saturated solution of sodium hydroxide Aqua ammonia (25%) Saturated solution of chromic acid Mixed acid solution of ferric chloride Carbon tetrachloride Petroleum benzine Methyl acetate Ethyl alcohol Chloroform Acetone Xylene Worcestershire sauce Mayonnaise Mayonnaise Mayonnaise Ketchup O Concentrated nitric acid (60%) O Concentrated hydrochloric acid (1:1) O Concentrated sulfuric acid (1:1) O Concentrated sulfuric acid (1:1) O Concentrated nitric acid (1:1) O Concentrated sulfuric acid (1:1) O Concentrated sulfuric acid (1:1) O Concentrated sulfuric acid (1:1) O Saturated solution of sodium hydroxide O Carbon tetrachloride O Carbon tetrachloride O Carbon tetrachloride O Concentrated solution of ferric chloride O Concentrated sulfuric acid (1:1) O C	Concentrated hydrochloric acid (35%)	0		
Aqua regia Concentrated hydrochloric acid+ Concentrated sulfuric acid (1:1) Concentrated nitric acid+ Concentrated sulfuric acid (1:1) Acetic acid (20%) Phosphoric acid (85%) Hydrofluoric acid (46%) Perchloric acid (60%) Saturated solution of sodium hydroxide Aqua ammonia (25%) Saturated solution of potassium permanganate Mixed acid solution of ferric chloride Carbon tetrachloride Petroleum benzine Methyl acetate Ethyl alcohol Chloroform Acetone Xylene Worcestershire sauce Soy sauce Grilled meats sauces Mayonnaise Ketchup O Concentrated hydrochloric acid (1:1) O Concentrated sulfuric acid (1:1) O Chloroform O Ketchup O Ketchup	Concentrated sulfuric acid (98%)	0		
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Hydrofluoric acid (46%) X Perchloric acid (60%) O Saturated solution of sodium hydroxide O Aqua ammonia (25%) O Saturated solution of potassium permanganate O Mixed acid solution of chromic acid O Saturated solution of ferric chloride O Carbon tetrachloride O Petroleum benzine O Methyl acetate O Ethyl alcohol O Chloroform O Acetone O Xylene O Worcestershire sauce O Grilled meats sauces O Mayonnaise O Ketchup O	Acetic acid (20%)	0		
Perchloric acid (60%) Saturated solution of sodium hydroxide Aqua ammonia (25%) Saturated solution of potassium permanganate Mixed acid solution of chromic acid Saturated solution of ferric chloride Carbon tetrachloride Petroleum benzine Methyl acetate Ethyl alcohol Chloroform Acetone Xylene Worcestershire sauce Soy sauce Grilled meats sauces Mayonnaise Ketchup	Phosphoric acid (85%)	0		
Saturated solution of sodium hydroxide Aqua ammonia (25%) Saturated solution of potassium permanganate Mixed acid solution of chromic acid Saturated solution of ferric chloride Carbon tetrachloride Petroleum benzine Methyl acetate Ethyl alcohol Chloroform Acetone Xylene Worcestershire sauce Soy sauce Grilled meats sauces Mayonnaise Ketchup	Hydrofluoric acid (46%)	×		
Aqua ammonia (25%) ○ Saturated solution of potassium permanganate △ Mixed acid solution of chromic acid ○ Saturated solution of ferric chloride ○ Carbon tetrachloride ○ Petroleum benzine ○ Methyl acetate ○ Ethyl alcohol ○ Chloroform ○ Acetone ○ Xylene ○ Worcestershire sauce ○ Soy sauce ○ Grilled meats sauces ○ Mayonnaise ○ Ketchup ○	Perchloric acid (60%)	0		
Saturated solution of potassium permanganate △ Mixed acid solution of chromic acid ○ Saturated solution of ferric chloride ○ Carbon tetrachloride ○ Petroleum benzine ○ Methyl acetate ○ Ethyl alcohol ○ Chloroform ○ Acetone ○ Xylene ○ Worcestershire sauce ○ Soy sauce ○ Grilled meats sauces ○ Mayonnaise ○ Ketchup ○	Saturated solution of sodium hydroxide	0		
Mixed acid solution of chromic acid O	Aqua ammonia (25%)	0		
Saturated solution of ferric chloride Carbon tetrachloride Petroleum benzine Methyl acetate Ethyl alcohol Chloroform Acetone Xylene Worcestershire sauce Grilled meats sauces Mayonnaise Ketchup O Carbon ferric chloride O Chloride O Chloroform O Acetone O Ketchup		Δ		
Carbon tetrachloride Petroleum benzine Methyl acetate Ethyl alcohol Chloroform Acetone Xylene Worcestershire sauce Grilled meats sauces Mayonnaise Ketchup O O O O O O O O O O O O O	Mixed acid solution of chromic acid	0		
Petroleum benzine Methyl acetate Ethyl alcohol Chloroform Acetone Xylene Worcestershire sauce Grilled meats sauces Mayonnaise Ketchup O Methyl acetate O Chloroform O Acetone O Xylene O Ketchup	Saturated solution of ferric chloride	0		
Methyl acetate Ethyl alcohol Chloroform Acetone Xylene Worcestershire sauce Soy sauce Grilled meats sauces Mayonnaise Ketchup O	Carbon tetrachloride	0		
Ethyl alcohol O Chloroform O Acetone O Xylene O Worcestershire sauce O Grilled meats sauces O Mayonnaise O Ketchup O	Petroleum benzine	0		
Chloroform O Acetone O Xylene O Worcestershire sauce O Grilled meats sauces O Mayonnaise O Ketchup O	Methyl acetate	0		
Acetone Xylene Worcestershire sauce Soy sauce Grilled meats sauces Mayonnaise Ketchup O Control of the	Ethyl alcohol	0		
Xylene O Worcestershire sauce O Soy sauce O Grilled meats sauces O Mayonnaise O Ketchup O	Chloroform	0		
Worcestershire sauce O Soy sauce O Grilled meats sauces O Mayonnaise O Ketchup O	Acetone	0		
Soy sauce O Grilled meats sauces O Mayonnaise O Ketchup O	Xylene	0		
Grilled meats sauces Mayonnaise C Ketchup	Worcestershire sauce	0		
Mayonnaise O Ketchup O	Soy sauce	0		
Ketchup O	Grilled meats sauces	0		
	Mayonnaise	0		
Cooking oil	Ketchup	0		
	Cooking oil	0		

Testing body/

Aichi Prefecture Industrial Technical Research Institute

●A method of testing/JIS K 5600 6-1

Method 3 Equivalent to the intravenous method Fluid volume: 0.2ml, Test time: 24h

■ACCERATED WEATHER RESISSTANT TEST

1	Test Item	Test Time	Difference △E	Glass Level (60°)	Retention (%)
	Zero tect	0		35.7	_
Α	Zero tect (White)	500	2.3	34.5	96.6
um i	Zero clear	0	_	50.8	_
num		500	0.2	50.1	98.6
		0	_	282	_
		500	0.6	260	92.9
GI	ي Zero clear —	0	_	147	_
ass		500	0.4	140	95.2

- $\bullet \mathsf{Testing}\ \mathsf{body} \diagup \mathsf{S.\,B.}\ \mathsf{Research}\ \mathsf{Co.}\,,\ \mathsf{Ltd.}$
- ■A method of testing/
 - Accelerated Weathering Test Method
 - (1) Continuous irradiation
 - (2) Radient illlumination: 900W/m2 (300 to 400nm)
 - (3) BP temperature: 63°C
- (4) Humidity: 50%RH
- Almost no color difference was observed before and after the test even when the product was exposed outdoors to UV rays equivalent to 20 years. Effect by UV rays will hardly occur.



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JAPAN TECHNOLOGY

Environment Friendly Coating Technology



"Zero Clear" Coating Grease stain, everything can be removed by just water!

JAPAN TECHNOLOGY

Coating process







Surface-protection performance

Tough contamination by food and oil that could cause corrosion or stains can be easily removed using only water, and the coating will resist chemicals and acids.

Heat resistance

It is heatproof up to 500 °C. This can be used various application.



"zero clear" is clear coating.





High hardness/Abrasion resistance

The coating will not come off even when it is rubbed with the Scotch-Brite surface of a scouring pad.

Antimicrobial/antifungal effects

The propagation of bacteria is suppressed, thereby exerting an excellent antimicrobial effect, and powerful protection as well.



"zero tect" is color coating. This is hydrophilic ingorganic coating similar to "zero clear".



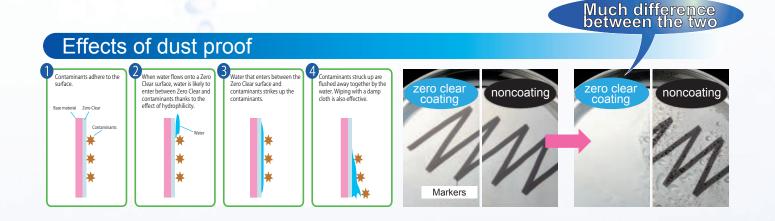


We created environmentally friendly technology



This coating has

- hydrophilicity
- high hardness,
- antifouling effect
- anti-microbial effect.





(ZETO) Cleor









