



Dust & Grease Cleaner

BTS-99™

BTS-77™

SGD-77™



JCHEM ENGINEERING SDN BHD

BTS-99™ Electric and Electronic Communication equipment Dust Cleaner

Spark, Arc There is no risk of fire, Detergent with "digestion" function in case of fire.

Electrical and Electronic Communication equipment is composed of a complex of electronic devices such as precision circuits and highly integrated semiconductors. The conductive and combustible dust or pollutant accumulated on the surface of semiconductor and charging parts are the main cause of Malfunctions and Short failures.

BTS-99 is a new technology product of environment-friendly, disaster safety certification that eliminates the risk of fire in sparks and arcs generated by electric power relay and electromagnetic switch, and can be extinguished only by spraying in case of electric fire.



(550g)



BTS-99(S)

■USE

It is effective when cleaning contaminants using high pressure spray

(10kg)

I Features of BTS-99

• Cleaning without interrupting power supply.

Dust can be removed without interruption of power supply (Can: 20KV, Solv: within 35KV)

• No flammability. Can be extinguished in case of electric fire

In case of initial electric fire (Spark, Arc, etc.), it can be extinguished by spraying on the spot (flame). Disaster safety certification products.

• No damage to electronic components

There is no damage to the PCB and the mounted electronic components.

• Dust decomposition in a short time.

Easily removes dust from gaps in electronic components with excellent penetration.

• Prevent static and noise

There is no static or noise generated from the air compressor and vacuum sucker.

• Environmentally friendly ingredient

It does not scatter dust and it is an eco-friendly product.

• Evaporation : Liquid evaporates within 3~8 Minutes after cleaning

※ BTS-99 contains Honywell Solstice® Performance Fluid, which is non-flammable and has an ultra low global warming potential of 1.

I Quality standard



Korean Intellectual
Property Office



Disaster Safety
Certification

Category	Element		Standard	Measurement
Cleaning performance	Aniline Point		< 70℃	60.1℃
	Surface tension (Test Methods : KS M 2525)			14.9℃
	Spray power(kg/cm ²)		> 2.1	2.1
	FBP (ASTM D86)			74.4℃
Electric fire safety	Flash point (KS M ISO 2592)		None	None
Electronic components and equipment safety	Dielectric Breakdown Voltage(2.5mm)/KV (KS C IEC 60156)	Can	> 20	20
		Solv	> 35	56.3
	Non-corrosive		Non-corrosive	Non-corrosive
	Material Influence (discolor, transform, malfunction)		Before and after spraying	No influence (self-assessment)
Can (550g/Spray Type)	Pressure Capacity	Steam pressure or internal pressure in 35℃	< 0.8MPa	0.18 MPa
		Steam pressure or internal pressure in 50℃		0.26 MPa
	Filling gas HFO-1233zd/1234ze	ODP		0
		GWP		1
Certification	Disaster Safety Product	Disaster Safety Certification Products (Korea Business Continuity Planning Association)		Certification (Yes, No)
				No 2018-01 (SS-M-0005)

BTS-77™ Electric and Electronic Communication equipment Dust Cleaner

PCB, and electronic parts, **Performance deterioration, shortened life span, trouble etc.**
preventive cleaning agent.



(539g)

The dust and foreign substances is generated during operation because of electrostatic induction and induced to semiconductor related components on PCB of various electronic devices and telecommunication equipments. It definitely causes poor efficiency, short circuit and shortens product life of the components & device itself. BTS-77 is a remarkable cleaning agent to prevent economic loss and safety accidents caused by such phenomena. BTS-77 is awarded multiple symbolic Certificates from Korean government.



BTS-77(S)

■USE

It is effective when cleaning contaminants using high pressure spray

(20 L)



I Features of BTS-77

- **Cleaning available while equipment in operation**
Non conductive material to be used for 50 KV high voltage
- **Non-corrosive material**
No damage for PCB and electronic components as the non-corrosive material
- **Cleaning in short time**
Strong blowing force to remove the dust at critical point easily & quickly
- **Prevent static and noise**
Neutralize electrostatic ion to avoid harmful static and noise generated by the compressor or the vacuum cleaner
- **Environment-friendly ingredient(Environmental certification)**
Reduction of dangerous substances

※ Caution

Be careful of sparks, arcs and corona of dusty relays and magnet switches.

I Cleaning Process



I Quality standard



Korean Intellectual
Property Office



Category	Element		Standard	Measurement
Cleaning performance	Aniline Point		< 90℃	84℃
CAN (539g/spray type)	Filling Gas			HFC134a Mixture
	Pressure Capacity	Steam pressure or internal pressure in 35℃	< 0.8MPa	0.78MPa
		Steam pressure or internal pressure in 50℃		1.14MPa
Equipment Safety	Dielectric Breakdown Voltage (2.5mm)/KV (KS C IEC 60156)		> 50	83.72
	Non-corrosive		Non-corrosive	Non-corrosive
	Material Influence (discolor, transform, malfunction) (Korea Electronics Technology Institute)		Comparison between before and after wetting	No influence
Environmental Certification	Reduction of dangerous substances (Agency for Environmental Industry Technology)		Certification (Yes, No)	Certification (No:4634)
EPC Certification	Excellent Performance Certification (The Small & Medium Business and Administration)		Certification (Whether or not)	Certification (No:15-69)
NEP Certification	New Excellent Product (Ministry of Knowledge and Economy)		Certification (Whether or not)	Certification (KEP-MKE-2008-012)

I Applications (Case)

Power Plants (thermal, hydro, nuclear, cogeneration, solar)



Instrumentation Control



Server

Electric Panel

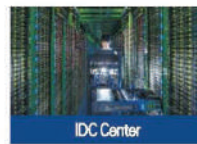
Environmental Facilities

Solar Power: Inverter

Base Transceiver System



Communication Repeater



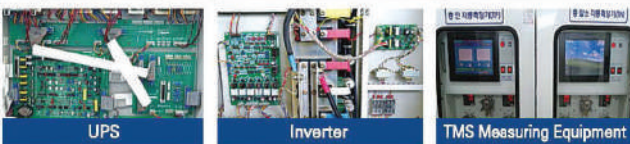
IDC Center



Base Transceiver System



Others (buildings, APT, steel mills, factories, etc.)



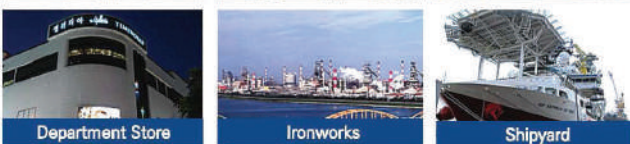
UPS

Inverter

TMS Measuring Equipment



Motor: Winding

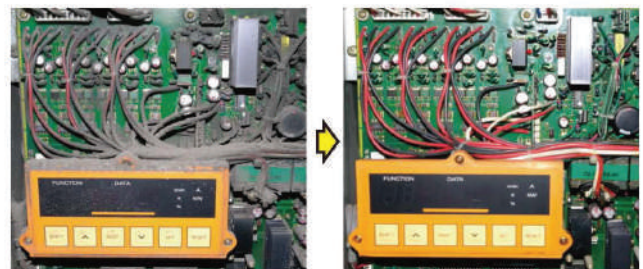


Department Store

Ironworks

Shipyard

Elevator





(515g)

Substation(GIS) Grease Cleaner

The circuit-breaker in GIS substation is equipment serving to prevent electrical accidents from occurring by automatically interrupting an abnormal electric current flow, which is mainly caused by various reasons including natural phenomena such as lightning, earthquake, etc. However, the grease stuck to the equipment is not only hard in nature to remove, but also often preventing the circuit - breaker from normal operation causing a failure (accident). This is a grease cleaner we developed to effectively remove grease with such particular properties.



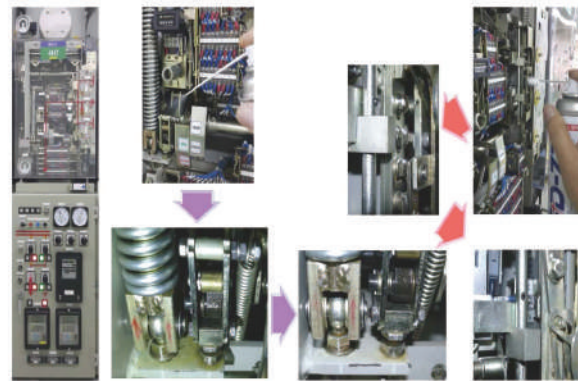
KEPCO substation facility "maintenance" registered product (March 10, 2016)

I Features of SGD-77

- **Excellent decomposability**
Mineral oil, Synthetic oil
(PPE: Poly Phenylene Ether, PAO: Poly Alpha Olefin), etc.
- **Economy**
Superior cleaning power without requiring to disassemble the equipment (Reduction of working time and labor cost)
- **Efficiency**
Appropriate jet force enabling the cleaning agent to penetrate into the gaps to easily remove grease
- **Safety**
No damage (corrosion) to the parts after cleaning work
- **Eco-friendly**
Safe to the human body and environment

I Applications (Case)

(Maker : Hyundai Heavy Industries)



I Quality standard



Item			Description	Criteria	Measured Value
Cleaning Power	Decomposition	Base oil type	Mineral oil, Synthetic oil (PPE, PAO)	If decomposed (yes/no)	Decomposed
		Thickener type	Polyurea, Li-soap	If decomposed (yes/no)	Decomposed
	Cleaning Method	Ordinary grease	Remove upon spraying	NLGI (Consistency): Grade 1 & 2	Decomposed
		Stuck grease	Re-spraying after 5~10 minutes	Re-spraying after 5~10 minutes	Decomposed
	Jet force	5.2kg/cm²	Cleaning gaps & supporting grease not to be fallen off	>5.2kg/cm²	>5.2kg/cm²
	Residues and Evaporation time	Residues	NONE		
		Evaporation time	About 40 minutes	1) Temperature: 20℃, 2) Humidity: 40%	<40 minutes
Can(Container) (515g/Spray Type)		Pressure-resistant	Steam or internal pressure at 35℃	<0.8MPa	0.7MPa
			Steam or internal pressure at 35℃		1.14MPa
		Filling gas	HFC(134+152 Mix)	HFC(134+152 Mix)	HFC(134+152 Mix)
Device Safety		Breakdown Voltage	(2.5mm)/KV (Test method: KSC IEC 60156)	> 30	> 98
		Corrosiveness	(Test method: KS C2101: 2006)	Non-corrosive	Non-corrosive
		Influence on material	Plastic (Discoloration, Deformation)	None	No impact
Product Components		Absorbent paper included	For grease removal: 1000mm x 750mm (one side Vinyl, the other non-woven fabric coating)	Included or Not	Included

Patent and Certification



COC-1 • CNC(AMP) Oil & Dust Cleaner



Ultra-precision electronic components that can not be physically removed Cleaner that can remove contaminants (such as grease) between cracks without damaging electronic components.

- Application
 - COC-1: Oil & dust remover
 - COC-2: For disassembled oil
- Capacity • 18 ℓ , 500ml

AC-77 • Multi-Purpose Cleaner



Excellent detergent for the removal of oil and stains by using of complex surfactant extracted from palm.

- Application
 - Grease, oil, stain etc.
- Capacity • 18 ℓ , 500ml

HS-747 • High Speed Rail “Pantograph” Cleaner



Cleaner that improves heat exchange by removing contaminants from fans and blower filters, high-speed railway fantographs, and heat sinks in communication base stations.

- Application
 - Communication base station : Blow filter
 - High-speed railway : Fantograph
 - Electric Vehicle: Heat Sink
 - Steelworks and industry: Carbon dust, dirt
- Capacity • 18 ℓ , 500ml

EIC -77 • Electric Insulator Cleaner



Electric insulators and air conditioner surface contaminant removers.

- Application
 - Electric insulators and air conditioning contaminants
- Capacity • 18 ℓ , 500ml

SPC-10 • Solar Module Cleaner



A detergent that breaks the intermolecular binding force of foreign substances by penetrating between the surface of solar module and contaminants.

- Application
 - Contaminants in solar modules.
- Capacity • 20 ℓ



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Registration No.201301032202 (1062031-W)
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