DOTITE

Stretchable and Moldable Electrically Conductive Inks

藤倉化成株式会社
FUJIKURA KASEI CO.,LTD.

Electronics Materials Division

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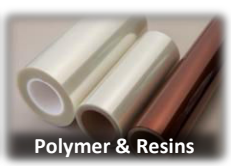
Taking on Challenges and Working Together

Introduction and Business Divisions

Fujikura Kasei produces polymer materials for a variety of applications, developing unique, value-added products based on our decades of accumulated expertise.



DOTITE Electrically Conductive Pastes

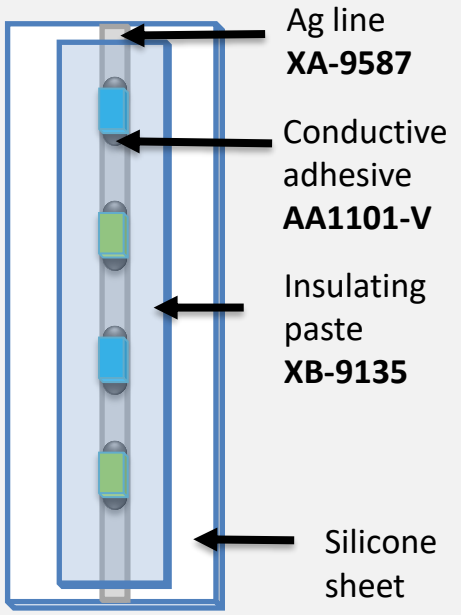
In 1957, we were the first manufacturer in Japan to develop and sell electrically conductive pastes and insulators for electronics under the brand name DOTITE. We have a wide range of inks, adhesives, and EMI shield paints.

This catalogue will introduce some of our latest developments in stretchable and moldable conductive inks.


DOTITE – Stretchable Silicone Pastes

Lineup of electrically conductive silver, conductive carbon, and electrically insulating pastes for printing on stretchable silicone sheets.

Example of LED Mounting



- Silicone ink formulated for use in wearable electronics.
- Low elastic modulus, providing softness and excellent stretchability.

	DOTITE XA-9587	DOTITE XB-9135	DOTITE XC-9115	DOTITE AA1101-V
Type	Silicone for Ag circuitry	Silicone insulator	Silicone carbon	Silicone conductive adhesive
Resistivity	2×10^{-4} Ω・cm	-	1.8 Ω・cm	5×10^{-4} Ω・cm
Substrate	Silicone sheet	Silicone sheet	Silicone sheet	Silicone sheet
Stretch	100% <	100% <	100% <	-
Curing Conditions	160℃, 60 mins.	150℃ 30 mins.	150℃, 30 mins.	160℃, 60 mins.
Application	Screen printing	Screen printing	Screen printing	Metal mask printing

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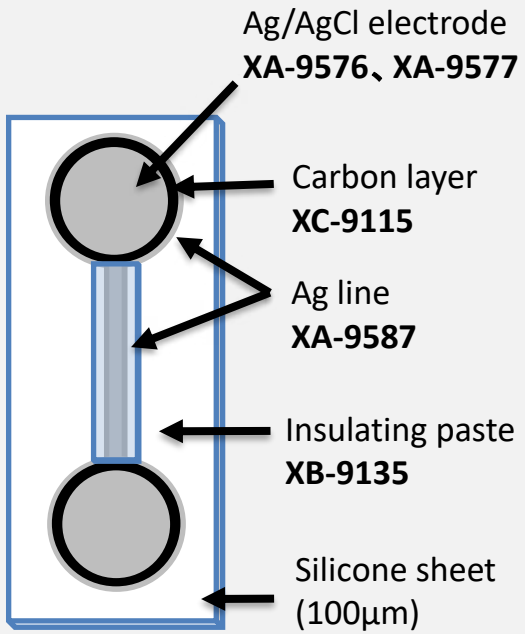
DOTITE – Ag/AgCl Stretchable Silicone Pastes

Silicone-based Ag/AgCl stretchable pastes for medical devices.

	DOTITE XA-9576	DOTITE XA-9577
Ag/AgCl Ratio	90/10	70/30
Resistivity	4.3×10^{-4} Ω・cm	1.2×10^{-3} Ω・cm
Substrate	Silicone sheet	Silicone sheet
Stretch	100% <	100% <
Curing Conditions	150℃, 30 mins.	150℃, 30 mins.
Application	Screen printing	Screen printing



Example of multilayer structure for iontophoresis

- Silicone inks formulated for medical electrodes, iontophoresis, etc.
- Biocompatibility testing by ISO 10993-5 (cytotoxicity) standards cleared.

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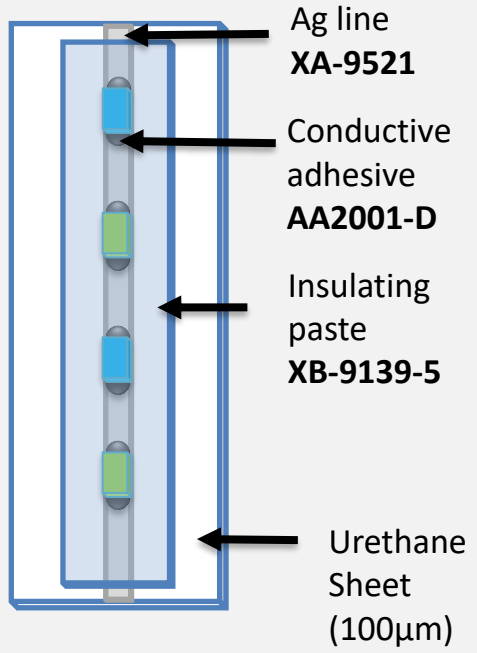
DOTITE – Stretchable Urethane Pastes

Lineup of electrically conductive silver, conductive carbon, and electrically insulating pastes for printing on stretchable urethane sheets.

	DOTITE XA-9521	DOTITE XB-9139-5	DOTITE XC-9102	DOTITE AA2001-D
Type	Urethane for Ag circuitry	Urethane insulator	Urethane carbon	Epoxy conductive adhesive (2-component)
Resistivity	4×10^{-4} Ω・cm	-	1.5 Ω・cm	5×10^{-3} Ω・cm
Substrate	Urethane sheet, etc.	Urethane sheet, etc.	Urethane sheet, etc.	Urethane sheet, etc.
Stretch	100% <	100% <	50% <	-
Curing Conditions	100℃, 60 mins.	100℃, 60 mins.	100℃, 60 mins.	23℃, 24 hrs.
Application	Screen printing	Screen printing	Screen printing	Dispensing

Example of LED Mounting



- Urethane ink combines stretchability with improved compatibility with a variety of substrates.
- Good washability for reusable wearable devices.

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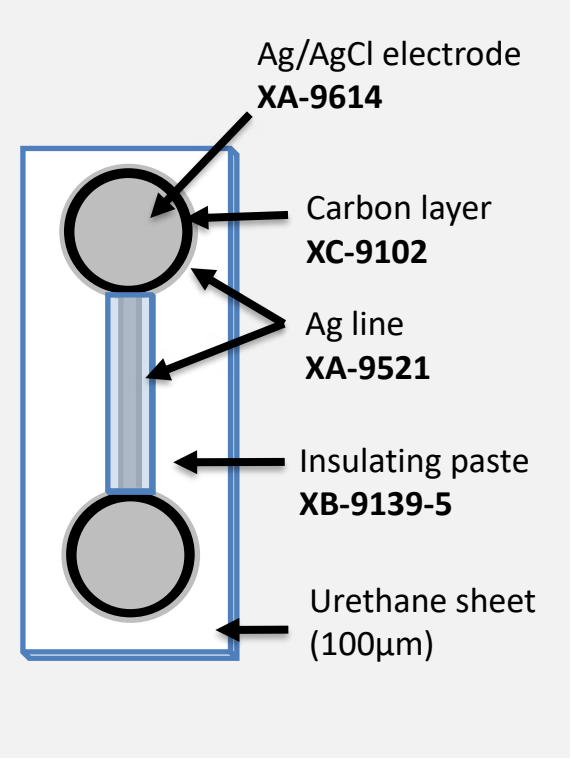
DOTITE – Ag/AgCl Stretchable Urethane Pastes

Urethane-based Ag/AgCl stretchable inks for medical devices.

	DOTITE XA-9614
Ag/AgCl Ratio	90/10
Resistivity	5.0 x 10^{-4} Ω・cm
Substrate	Urethane sheet
Stretch	50%
Curing Conditions	100℃, 60 mins.
Application	Screen printing



Example of multilayer structure for iontophoresis

- Urethane inks formulated for medical electrodes, iontophoresis, etc.
- Proven for use in ECG electrodes.
- Can be used with electrically conductive gels.
- Compatible with DOTITE urethane carbon pastes, insulators and adhesives.

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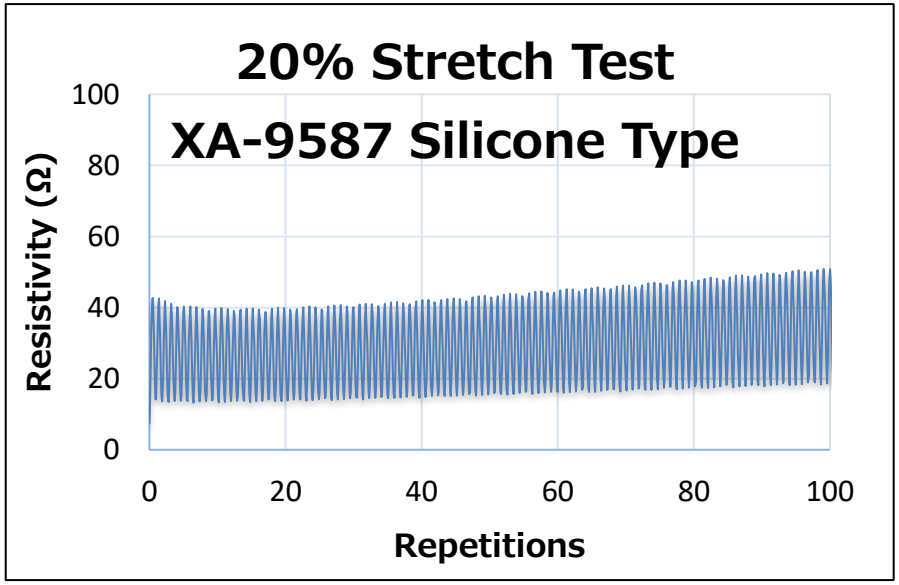
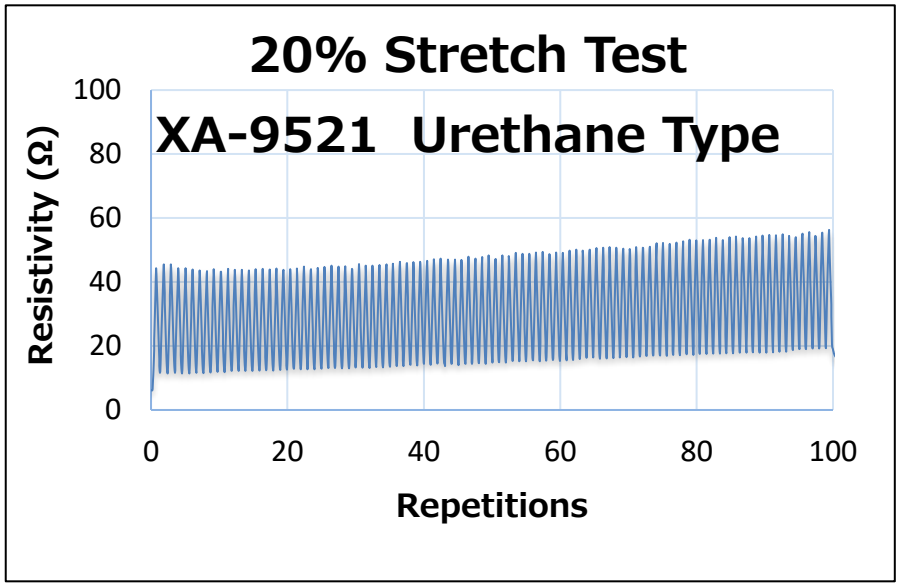
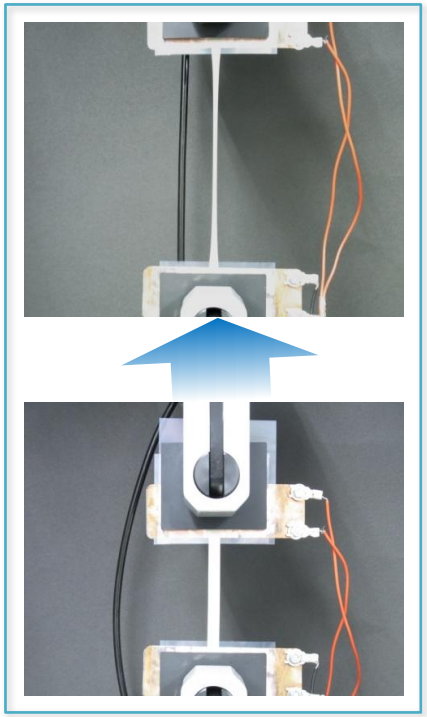
DOTITE – Stretching Properties





- Maintains stable resistivity even after repeated 20% stretching
- Maintains conductivity even after 100% stretching

Stretchability Test



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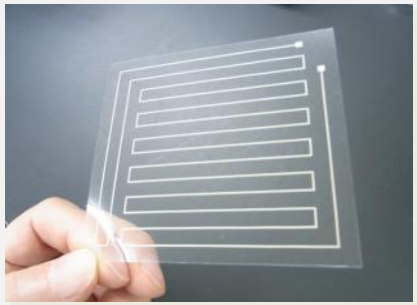
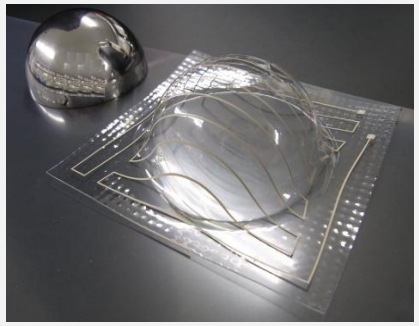
DOTITE - Moldable Pastes for IME

Lineup of electrically conductive silver, conductive carbon, and electrically insulating pastes for thermoforming.

	DOTITE XA-3737	DOTITE XA-4057	DOTITE XC-3257	DOTITE XB-3437
Type	For Ag circuitry High expansion	For Ag circuitry High conductivity	Carbon type Circuit protection	Insulating paste (White)
Substrate	PC, PET	PC, PET	PC, PET	PC, PET
Resistivity	1.0×10^{-4} Ω・cm	1.4×10^{-5} Ω・cm	2.0×10^{-1} Ω・cm	-
Expansion	100% <	≦ 5%	100% <	100% <
Curing Conditions	125℃, 30 mins.	125℃, 30 mins.	125℃, 30 mins.	120℃, 30 mins.
Application	Screen printing	Screen printing	Screen printing	Screen printing





After screen printing on PC, 3D circuitry can be formed using vacuum forming/pressure forming.

- XA-3737 can expand up to 400% with vacuum forming without breaks.
- Curing time can be reduced with IR curing.

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