



Products for the solar industry

Table of content

Product overview solar fluxes4

Solar fluxes.....7 – 13

Cleaning agents 14

Contact..... 16

DO YOU HAVE ANY QUESTIONS
ABOUT OUR PRODUCTS?
WE WILL BE HAPPY TO ADVISE YOU UNDER:
+49 (6123) 7046 – 0





Product overview solar fluxes:

Solar Flux	E0-S-001	E0-S-002	E0-S-007	E0-S-008	E0-S-009	E0-S-010
Cat.Nr.	6200	6202	6207	6208	6209	6210
Carrier material	Alcohol	Alcohol	Alcohol	Alcohol	Alcohol	Alcohol
Dangerous good	Yes	Yes	Yes	Yes	Yes	Yes
Solid content [wt.-%]	1,3	2,0	2,0	2,0	1,8	1,5
Acid value [mg KOH/g]	9,5 – 10,5	16 – 19	15 – 18	15 – 18	16 – 18	11 – 15
Halogen-free	Yes	Yes	Yes	Yes	Yes	Yes
Synthetic resin content	No	Very low	Nein	Very low	Very low	Very low
Best activation [°C]	140 – 130	150 – 170	110 – 170	85 – 120	130 – 160	130 – 170
ISO 9454	2131	2231	2131	2131	2231	2231
DIN EN 61190-1-1 IEC	ORL0	ORL0	ORL0	ORL0	ORL0	ORL0
Concentrate	Yes	Yes	Yes	Yes	Yes	Yes
Quick-drying version	Yes	Yes	Yes	Yes	Yes	Yes
Low melting (BSA)	No	No	No	Yes	No	No
Page	7	7	8	8	9	9

E0-S-011	E0-S-012	E0-S-013	E0-S-014	E0-S-015	E0-S-016	E0-S-017
6211	6212	6213	6214	6215	6216	6217
60 % IPA 40 % H ₂ O	85 % H ₂ O 15% alcohol	Alcohol	Alcohol	70 % IPA 30 % H ₂ O	Alcohol	75 % IPA 25 % H ₂ O
Yes	No	Yes	Yes	Yes	Yes	Yes
2,0	2,0	2,0	2,1	1,8	1,9	2,0
16 – 19	15 – 19	5 – 7	13 – 16	15 – 18	15 – 18	18 – 21
Yes	Yes	Yes	Yes	Yes	Yes	Yes
Very low	Very low	Very low	Very low	No	Very low	Very low
110 – 160	110 – 160	140 – 180	120 – 170	130 – 175	120 – 170	110 – 160
2231	2231	1231	2231	2131	2231	2231
ORL0	ORL0	REL0	ORL0	ORL0	ORL0	ORL0
No	No	Yes	Yes	No	Yes	No
No	No	Yes	Yes	No	Yes	No
No	No	No	No	No	No	No
10	11	11	12	12	13	13

Products for the solar industry

Emil Otto offers a wide portfolio for the soldering of solar modules, tabber and stringer material, as well as the joining of cells. This includes flux, rinsing and cleaning agents.

The fluxes are No Clean products that are formulated halogen-free. All fluxes leave no sticky residues. Process tests with renowned machine builders from the stringer technology sector prove this. Furthermore, the activators are specially designed for the high temperatures required for the production of solar modules without impairing the efficiency of the activators. This also applies to the actual application in particularly sunny and hot regions.

SOLAR FLUX-EO-S-001 Cat.-No. 6200

No Clean-Flux, alcohol-based, especially for the solar industry, halogen-free
WEEE /RoHS-compliant, ISO 9454: 2131 (2.1.3.A)
DIN-EN 61190-1-1 (acc. J-STD-004B): (IEC ORLO)




Customer added values:

- Flux for soldering solar modules, tabber and stringer material, as well as the connection of cells
- Very good wetting properties
- Very good soldering properties
- Halogen-free and resin-/rosin-free
- No staining and sticky residues
- Available as concentrate
- Available as fast-drying variant

Application method:

Soldering of solar modules, tabber and stringer material, as well as connecting cells

Packaging units:

 Canister 5 and 20 litres
Other packing sizes on request

Technical data:

Appearance/odour:	colourless, clear liquid
Solids content:	1.3 wt. %
Density 20 °C:	0.793 – 0.800 g/ml
Acid value:	9.5 – 10.5 mg KOH/g
Activators/resin:	halogen-free di-carboxylic acid complex
Solvents:	short-chain alcohols
Flash point:	12 °C

SOLAR FLUX-EO-S-002 Cat.-No. 6202

No Clean-Flux, alcohol-based, especially for the solar industry, halogen-free
WEEE /RoHS compliant, ISO 9454: 2231 (2.2.3.A)
DIN-EN 61190-1-1 (acc. J-STD-004B): (IEC ORLO)




Customer added values:

- Flux for the soldering of solar modules, tabber and stringer material, as well as connecting of cells
- Very good wetting properties
- Very good soldering properties
- Halogen-free formulation
- No staining and sticky residues
- Available as concentrate
- Available as fast-drying variant

Application method:

Soldering of solar modules, tabber and stringer material, as well as connecting cells

Packaging units:


 Canister 5 and 20 litres
Other packing sizes on request

Technical data:

Appearance/odour:	colourless, clear liquid
Solids content:	2.0 wt. %
Density 20 °C:	0.793 – 0.800 g/ml
Acid value:	16 – 19 mg KOH/g
Activators/resin:	halogen-free di-carboxylic acid-resin complex
Solvents:	short-chain alcohols
Flash point:	12 °C

SOLAR FLUX-EO-S-007

Cat.-No. 6207




Customer added values:

- Flux for soldering solar modules, tabber and stringer material, as well as the connection of cells
- Very good wetting properties
- Very good soldering properties
- Halogen-free and resin-/rosin-free
- No staining and sticky residues
- Available as concentrate
- Available as fast-drying variant

Application method:

Soldering of solar modules, tabber and stringer material, as well as connecting cells

Packaging units:




Canister 5 and 20 litres
Other packing sizes on request

Technical data:

Appearance/odour:	colourless, clear liquid
Solids content:	2.0 wt. %
Density 20 °C:	0.793 – 0.800 g/ml
Acid value:	15 – 18 mg KOH/g
Activators/resin:	halogen-free di-carboxylic acid complex
Solvents:	short-chain alcohols
Flash point:	12 °C

SOLAR FLUX-EO-S-009

Cat.-Nr. 6209




Customer added values:

- Flux for soldering solar modules, tabber and stringer material, as well as the connection of cells
- Very good wetting properties
- Very good soldering properties
- Halogen-free formulation
- No staining and sticky residues
- Available as concentrate
- Available as fast-drying variant

Application method:

Soldering of solar modules, tabber and stringer material, as well as connecting cells

Packaging units:




Canister 5 and 20 litres
Other packing sizes on request

Technical data:

Appearance/odour:	colourless light yellow, clear liquid
Solids content:	1.8 wt. %
Density 20 °C:	0,793 (+/- 0,003) g/ml
Acid value:	16 – 18 mg KOH/g
Activators/resin:	halogen-free di-carboxylic acid complex with resin additive
Solvents:	short-chain alcohols
Flash point:	12 °C

SOLAR FLUX-EO-S-008

Cat.-Nr. 6208




Customer added values:

- Flux for the soldering of solar modules, tabber and stringer material, as well as the connection of cells
- Very good wetting properties
- Very good soldering properties
- Halogen-free formulation
- No staining and sticky residues
- Available as concentrate
- Available as fast-drying variant

Application method:

Soldering of solar modules, tabber and stringer material, as well as connecting cells

Packaging units:




Canister 5 and 20 litres
Other packing sizes on request

Technical data:

Appearance/odour:	colourless light yellow, clear liquid
Solids content:	2.0 wt. %
Density 20 °C:	0.794 (+/- 0.003) g/ml
Acid value:	15 – 18 mg KOH/g
Activators/resin:	halogen-free di-carboxylic acid complex
Solvents:	short-chain alcohols
Flash point:	12 °C

SOLAR FLUX-EO-S-010

Cat.-Nr. 6210




Customer added values:

- Flux for soldering solar modules, tabber and stringer material, as well as the connection of cells
- Very good wetting properties
- Very good soldering properties
- Halogen-free formulation
- No staining and sticky residues
- Available as concentrate
- Available as fast-drying variant

Application method:

Soldering of solar modules, tabber and stringer material, as well as connecting cells

Packaging units:



Canister 5 and 20 litres
Other packing sizes on request

Technical data:

Appearance/odour:	farcolourless light yellow, clear liquid
Solids content:	1.5 wt. %
Density 20 °C:	0,793 (+/- 0,003) g/ml
Acid value:	11 – 15 mg KOH/g
Activators/resin:	halogen-free di-carboxylic acid complex with resin additive
Solvents:	short-chain alcohols
Flash point:	12 °C

8

9



SOLAR FLUX-EO-S-011

Cat.-Nr. 6211

No Clean-Flux, especially for the solar industry, halogen-free
WEEE /RoHS compliant, ISO-9454: 2231
DIN-EN 61190-1-1 (acc. J-STD-004B): L0 (IEC ORLO)




Customer added values:

- Flux for soldering solar modules, tabber and stringer material, as well as the connection of cells
- Very good wetting properties
- Very good soldering properties
- Halogen-free formulation
- No staining and sticky residues

Application method:

Soldering of solar modules, tabber and stringer material, as well as connecting cells

Packaging units:

 Canister 5 and 20 litres
Other packing sizes on request

Technical data:

Aussehen/Geruch:	colourless light yellow, clear liquid
Solids content:	2.0 wt. %
Density 20 °C:	0,86 – 0,88 g/ml
Acid value:	16 – 19 mg KOH/g
Activators/resin:	halogen-free di-carboxylic acid complex with resin additive
Solvent:	alcohol/partial water basis
Flash point:	20 °C

SOLAR FLUX-EO-S-012

Cat.-Nr. 6212

No Clean-Flux, especially for the solar industry, halogen-free
WEEE /RoHS compliant, ISO-9454: 2231
DIN-EN 61190-1-1 (acc. J-STD-004B): L0 (IEC ORLO)




Customer added values:

- Flux for soldering solar modules, tabber and stringer material, as well as the connection of cells
- Very good wetting properties
- Very good soldering properties
- Halogen-free formulation
- Contains organic, halogen-free, activating additives with low addition of synth. resin
- No staining and sticky residues

Application method:

Soldering of solar modules, tabber and stringer material, as well as connecting cells

Packaging units:

 Canister 5 and 20 litres
Other packing sizes on request

Technical data:

Appearance/odour:	colourless-transparent liquid
Solids content:	2.0 wt. %
Density 20 °C:	0,9 – 1,0 g/ml
Acid value:	15 – 19 mg KOH/g
Activators/resin:	Di-carboxylic acids, synth. Resin
Solvent:	water with added alcohol
Flash point:	not applicable
Additives:	Wetting agent, alcohol compound <15 %
VOC:	15 %

SOLAR FLUX-EO-S-013

Cat.-Nr. 6213

No Clean-Flux, alcohol-based, especially for the solar industry, halogen-free
WEEE /RoHS compliant, ISO-9454: 1231
DIN-EN 61190-1-1 (acc. J-STD-004B): L0 (IEC RELO)




Customer added values:

- Flux for soldering solar modules, tabber and stringer material, as well as the connection of cells
- Very good wetting properties
- Very good soldering properties
- Halogen-free formulation
- No staining and sticky residues
- Available as concentrate
- Available as fast-drying variant

Application method:

Soldering of solar modules, tabber and stringer material, as well as connecting cells.

Packaging units:


 Canister 5 and 20 litres
Other packing sizes on request

Technical data:

Aussehen/Geruch:	colourless light yellow, clear liquid
Solids content:	2.0 wt. %
Density 20 °C:	0,793 (+/- 0,003) g/ml
Acid value:	5 – 7 mg KOH/g
Activators/resin:	halogen-free resin-di-carboxylic acid complex
Solvents:	short-chain alcohols
Flash point:	12 °C

SOLAR FLUX-EO-S-014
Cat.-Nr. 6214

No Clean-Flux, alcohol-based, especially for the solar industry, halogen-free
WEEE /RoHS compliant, ISO-9454: 2231 (2.2.3.A)
DIN-EN 61190-1-1 (acc. J-STD-004B): L0 (IEC ORL0)




Customer added values:

- Flux for the soldering of solar modules, tabber and stringer material, as well as the connection of cells
- Very good wetting properties
- Very good soldering properties
- Halogen-free formulation
- No staining and sticky residues
- Available as concentrate
- Available as fast-drying variant

Application method:

Soldering of solar modules, tabber and stringer material, as well as connecting cells

Packaging units:


-  Canister 5 and 20 litres
Other packing sizes on request

Technical data:

Appearance/odour:	colourless light yellow, clear liquid
Solids content:	2.1 wt. %
Density 20 °C:	0,793 (+/- 0,003) g/ml
Acid value:	13 – 16 mg KOH/g
Activators/resin:	halogen-free di-carboxylic acid complex with resin additive
Solvents:	short-chain alcohols
Flash point:	12 °C

SOLAR FLUX-EO-S-015
Cat.-Nr. 6215

No Clean-Flux especially for the solar industry, halogen-free and resin-/rosin-free
WEEE /RoHS compliant, ISO-9454: 2131 (2.1.3.A)
DIN-EN 61190-1-1 (acc. J-STD 004B): L0 (IEC ORL0)




Customer added values:

- Flux for the soldering of solar modules, tabber and stringer material, as well as the connection of cells
- Very good wetting properties
- Very good soldering properties
- Halogen-free formulation
- No staining and sticky residues

Application method:

Soldering of solar modules, tabber and stringer material, as well as connecting cells

Packaging units:


-  Canister 5 and 20 litres
Other packing sizes on request

Technical data:

Appearance/odour:	colourless, clear liquid
Solids content:	1.8 wt. %
Density 20 °C:	0,86 – 0,88 g/ml
Acid value:	15 – 18 mg KOH/g
Activators/resin:	halogen-free di-carboxylic acid complex, resin-/rosin-free
Solvent:	alcohol / partial water base
Flash point:	20 °C

SOLAR FLUX-EO-S-016
Cat.-Nr. 6216

No Clean-Flux, alcohol-based, especially for the solar industry, halogen-free
WEEE /RoHS compliant, ISO-9454: 2231 (2.2.3.A)
DIN-EN 61190-1-1 (acc. J-STD-004B): L0 (IEC ORL0)




Customer added values:

- Flux for the soldering of solar modules, tabber and stringer material, as well as the connection of cells
- Very good wetting properties
- Very good soldering properties
- Halogen-free formulation
- No staining and sticky residues
- Available as concentrate
- Available as fast-drying variant

Application method:

Soldering of solar modules, tabber and stringer material, as well as connecting cells

Packaging units:


-  Canister 5 and 20 litres
Other packing sizes on request

Technical data:

Appearance/odour:	colourless light yellow, clear liquid
Solids content:	1.9 % wt. %
Density 20 °C:	0,793 (+/- 0,003) g/ml
Acid value:	15 – 18 mg KOH/g
Activators/resin:	halogen-free di-carboxylic acid complex with synth. resin additive
Solvents:	short-chain alcohols
Flash point:	12 °C

SOLAR FLUX-EO-S-017
Cat.-Nr. 6217

No Clean-Flux especially for the solar industry, halogen-free
WEEE /RoHS compliant, ISO-9454: 2131 (2.1.3.A)
DIN-EN 61190-1-1 (acc. J-STD 004B): L0 (IEC ORL0)




Customer added values:

- Flux for the soldering of solar modules, tabber and stringer material, as well as the connection of cells
- Very good wetting properties
- Very good soldering properties
- Halogen-free formulation
- No staining and sticky residues

Application method:

Soldering of solar modules, tabber and stringer material, as well as connecting cells

Packaging units:

-  Canister 5 and 20 litres
Other packing sizes on request

Technical data:

Appearance/odour:	colourless light yellow, clear liquid
Solids content:	2.0 wt. %
Density 20 °C:	0,82 – 0,88 g/ml
Acid value:	18 – 21 mg KOH/g
Activators/resin:	halogen-free di-carboxylic acid complex with resin additive
Solvent:	alcohol/partial water basis
Flash point:	12 °C
Additives:	wetting agent, alcohol compound 75 %
VOC:	75 %

ETIMOL SEM 12 RAA

Cat.-Nr. 5118

Cleaning agents especially for the solar industry





Customer added values:

- Etimol SEM 12 RAA is ideal for cleaning machines for the manufacturing of solar modules and tabber and stringer material.
- Aqueous formulation, foaming, practical spray bottle with foam nozzle
- Low odour development even when the machine is still warm
- No need for flammable and corrosive chemicals during maintenance cleaning
- Etimol SEM 12 RAA is completely label-free

Application method:

Cleaning of machines for the production of solar modules and tabber and stringer material

Packaging units:

-  Canister 20 litre
-  Spray bottle 1 litre

Technical data:

Appearance/odour:	beige-brown, clear
Form of application:	ready for use
pH-value:	alkaline
Density 20 °C:	1,000 (+/- 0,005) g/cm3
Boiling point/boiling range:	>100 °C
System:	water-based
Application temperature:	room temperature
Cleans reliably:	flux residues, outgassing of printed circuit boards
Shelf life:	36 months
Storage conditions:	ideally in sealed original container at 10 °C – 25 °C
Transport:	no dangerous goods, no labelling required
Flash point:	not applicable (>70 °C, non-flammable)

EO-RA-V

Cat.-Nr. 2946

Rinsing and cleaning agents, WEEE/RoHS compliant



Customer added values:

- EO-RA-V was particularly developed for the cleaning of fluxer systems and their surrounding
- When used properly, it enables meaningful testing of new fluxes on soldering systems

Application method:

Cleaning of fluxer systems and their surrounding

Packaging units:

-  Canister 20 litres

Technical data:

Appearance/odour:	colourless, clear liquid
Density 20 °C:	0,82 – 0,84 g/ml
Solvent:	isopropyl alcohol/water
Flash point:	12 °C





Products for the solar industry

EMIL OTTO

Flux- und Oberflächentechnik GmbH

Eltviller Landstraße 22
D-65346 Eltville (Erbach)

Phone: +49 (6123) 7046 – 0
Fax: +49 (6123) 7046 – 15

Mail: info@emilotto.de

www.emilotto.de