

## Contents

Characteristics

Properties

Dispense Test

Tack Time

Solder Spreading

Copper Mirror Corrosion

Copper Plate Corrosion

SIR

ECM

Halogen Content

Handling Guide

## KOKI No-Clean **Halogen Free** Tack Flux

# Halogen Free Tack Flux TF-M881R



## Product Information



### Disclaimer:

This Product Information contains product performance assessed strictly according to our own test procedures and is not the guaranteed results at end-users. Please conduct thorough process optimization before mass production application.



## Contents

Characteristics

Properties

Dispense Test

Tack Time

Solder Spreading

Copper Mirror Corrosion

Copper Plate Corrosion

SIR

ECM

Halogen Content

Handling Guide

## Characteristics

- Tack flux for soldering the BGA/ CSP component and repairing their solder joints
- In compliance with halogen free standard JEITA ET-7304A
- Classified as ROL0 by IPC J-STD-004B
- Ensures high electrical reliability



## Contents

Characteristics

**Properties**

Dispense Test

Tack Time

Solder Spreading

Copper Mirror Corrosion

Copper Plate Corrosion

SIR

ECM

Halogen Content

Handling Guide

## Properties

Application	Dispense
Product Name	<b>TF-M881R</b>
Halide Content	0
Flux Designation*1	ROL0
Viscosity*2(Pa.s)	25±10
Copper Plate Corrosion*3	Pass
Tack Time	>72 hours
Shelf Life	16-30 °C: 9 months

1. Flux designation: IPC J-STD-004B

2. Viscosity: Cone type viscometer, 10rpm at 20 °C

3. Copper Plate Corrosion: IPC TM-650 2.6.15 C



## Contents

Characteristics

Properties

Dispense Test

Tack Time

Solder Spreading

Copper Mirror Corrosion

Copper Plate Corrosion

SIR

ECM

Halogen Content

Handling Guide

## Continuous Dispense Test (Dispensability)

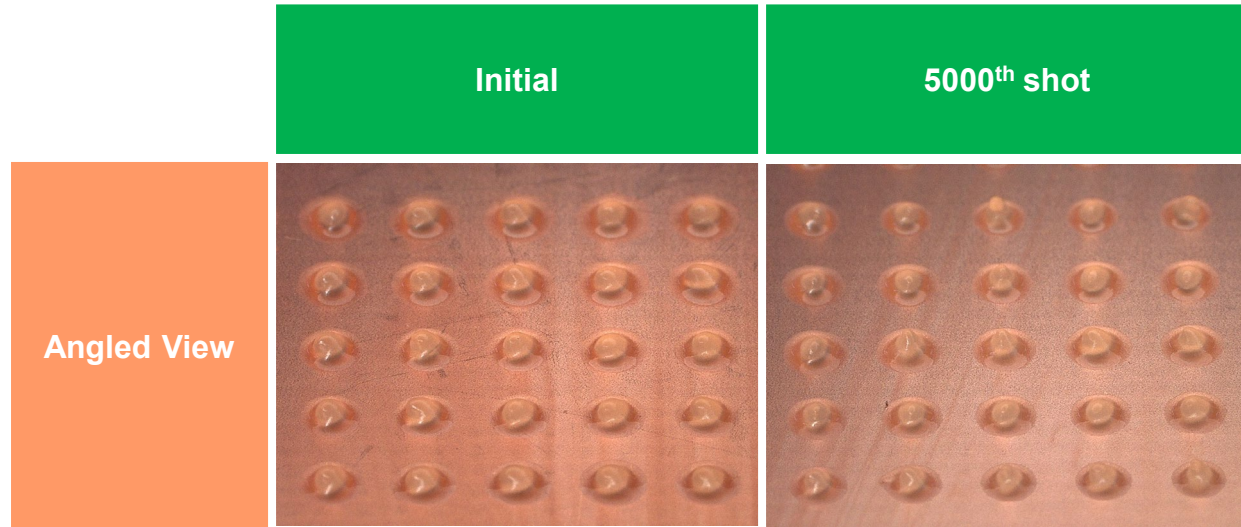
Dispenser: IMAGE MASTER-PC350 (Musashi Engineering)

Dispensing pressure: 0.20 MPa

Dispensing speed: 0.3 s/dot

Needle diameter: 0.61 mmφ

Ambient temperature: 25 °C



Dispensed dots are comparable throughout the test. TF-M881R possesses excellent continuous Dispense Test.



## Contents

Characteristics

Properties

Dispense Test

Tack Time

Solder Spreading

Copper Mirror Corrosion

Copper Plate Corrosion

SIR

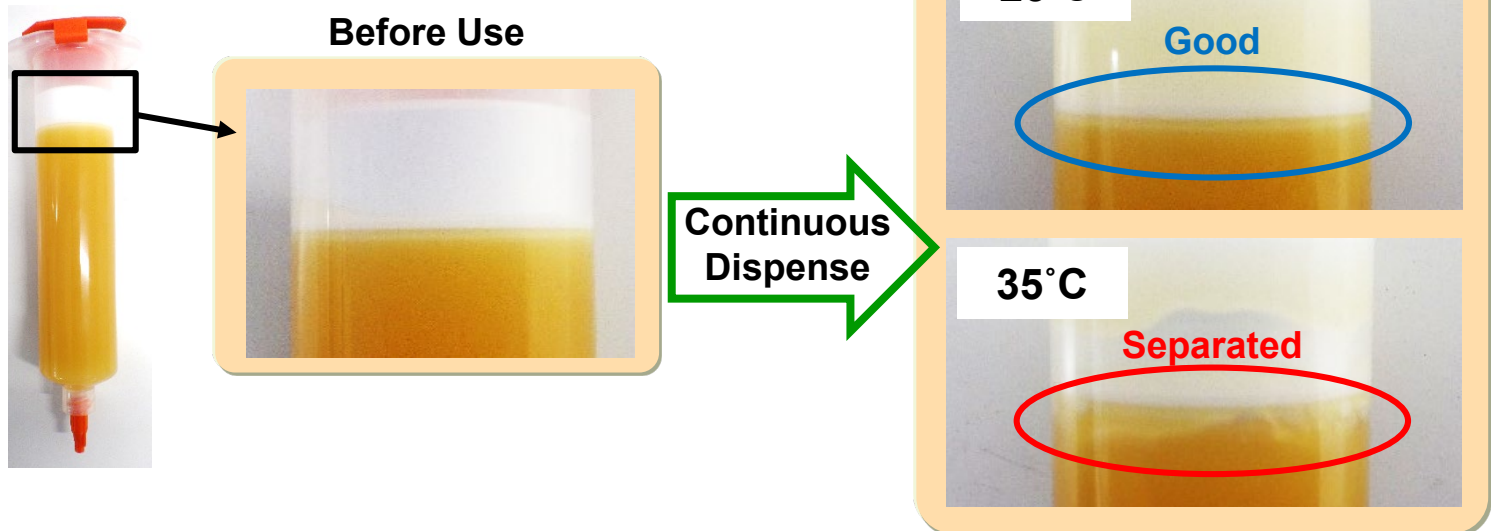
ECM

Halogen Content

Handling Guide

## Continuous Dispense Test (Syringe Condition)

Dispenser: IMAGE MASTER-PC350 (Musashi Engineering)  
Dispensing speed: 0.2 s/dot  
Needle diameter: 0.92 mmφ  
Syringe: S1 syringe, 30cc (Nordson)  
Test Method: Continuously dispense the tack flux at 25 °C and 35°C for 3.5 hours and visually inspect inside of the syringe.



According to KOKI internal evaluation, solvent and flux started to separate after 3.5 hours of continuous dispensing at 35°C. Separation of solvent and flux can result in unstable dispense performance. Therefore, we recommend to use this product under a condition which would not induce solvent-flux separation.



## Contents

Characteristics

Properties

Dispense Test

**Tack Time**

Solder Spreading

Copper Mirror Corrosion

Copper Plate Corrosion

SIR

ECM

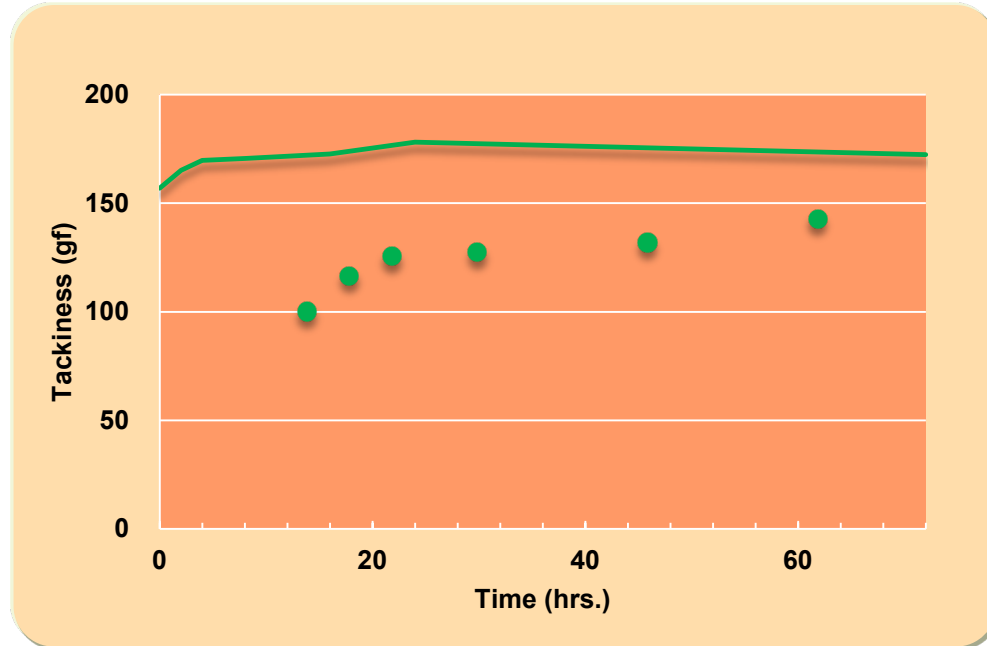
Halogen Content

Handling Guide

## Tack Time

Equipment: Tackiness tester TK-1 (Malcom)

Test standard: JIS Z 3284 4.5



Tackiness is stable over 72 hours.



## Contents

Characteristics

Properties

Dispense Test

Tack Time

Solder Spreading

Copper Mirror Corrosion

Copper Plate Corrosion

SIR

ECM

Halogen Content

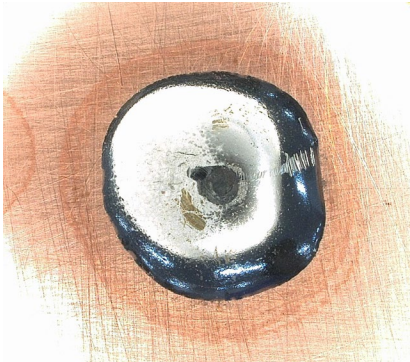
Handling Guide

## Solder Spreading Test

Stencil: 0.2mm (8 mils) thick, 6.5mm dia. aperture

Test standard: JIS Z 3197 8.3.1.1

Solder paste: Sn96.5, Ag3.0, Cu0.5

n	Spreading ratio (%)		Image
1	70.2	Average: 67.8	
2	68.7		
3	68.1		
4	63.4		
5	68.5		



## Contents

Characteristics

Properties

Dispense Test

Tack Time

Solder Spreading

Copper Mirror Corrosion

Copper Plate Corrosion

SIR

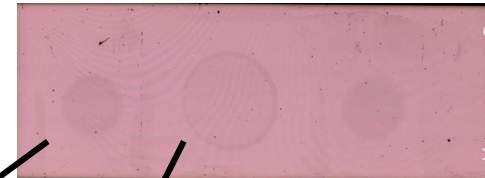
ECM

Halogen Content

Handling Guide

## Copper Mirror Corrosion

Test ambient:  $23 \pm 3^{\circ}\text{C} \times 50 \pm 5\% \text{RH}$   
Test duration: 24 hrs.  
Test standard: IPC-TM-650 2.3.32



Test piece

TF-M881R	WW class rosin 35%
Category : L	Category : L

No evidence of breakthrough was observed. It is classified as Category L.





## Contents

Characteristics

Properties

Dispense Test

Tack Time

Solder Spreading

Copper Mirror Corrosion

Copper Plate Corrosion

SIR

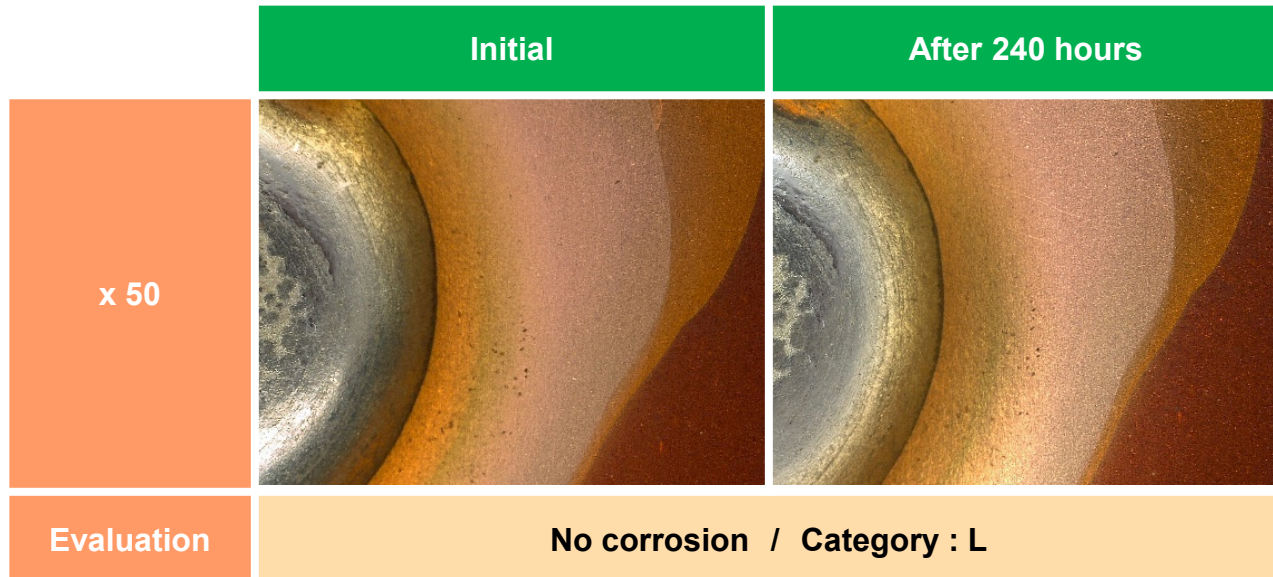
ECM

Halogen Content

Handling Guide

## Copper Plate Corrosion

Copper plate: 50 mm x 50 mm x 0.5 mm  
Test ambient:  $40 \pm 3^\circ\text{C} \times 93 \pm 5\% \text{RH}$   
Test duration: 240 hrs.  
Test standard: IPC-TM-650 2.6.15



No color change after 240 hours. It is determined as "No Corrosion" and classified as category L.



## Contents

Characteristics

Properties

Dispense Test

Tack Time

Solder Spreading

Copper Mirror Corrosion

Copper Plate Corrosion

**SIR**

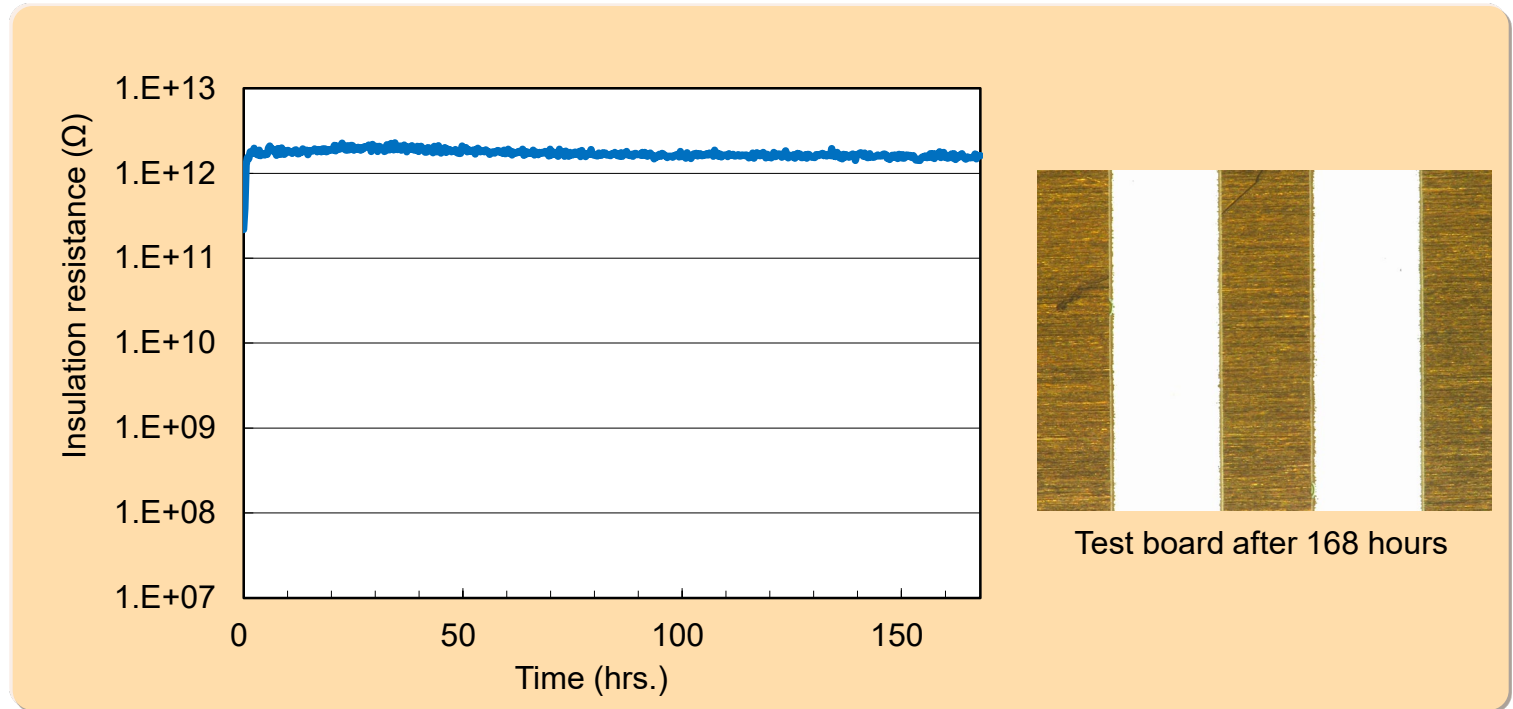
ECM

Halogen Content

Handling Guide

## Surface Insulation Resistance (SIR)

Test board:	IPC-B-24	Test ambient:	40±1°C x 90±3 %RH
Bias voltage:	12.5 V	Measurement voltage:	12.5 V
Test duration:	168 hrs.	Test standard:	IPC-TM-650 2.6.3.7



Insulation resistance did not drop throughout the test.



## Contents

Characteristics

Properties

Dispense Test

Tack Time

Solder Spreading

Copper Mirror Corrosion

Copper Plate Corrosion

SIR

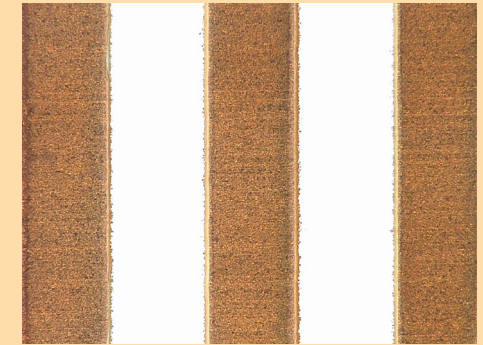
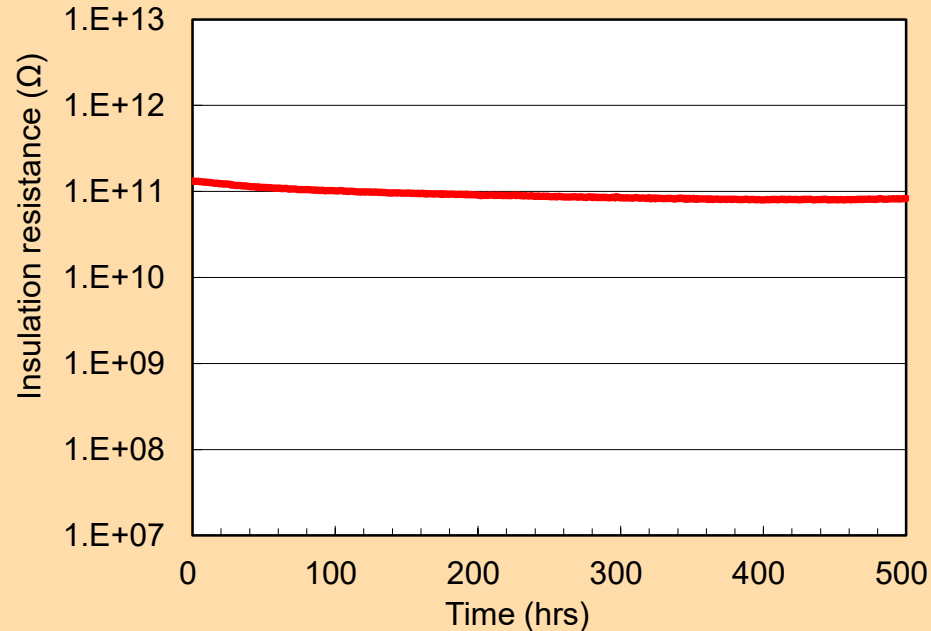
**ECM**

Halogen Content

Handling Guide

## Electro-Chemical Migration (ECM)

Test board:	IPC-B-25	Test ambient:	65±2 °C x 88.5±3.5 %RH
Bias voltage:	10 V	Measurement voltage:	100 V
Test duration:	500 hrs.	Test standard:	IPC-TM-650 2.6.14.1



Test board after 500 hours

No evidence of migration was observed. Insulation resistance did not drop throughout the test.



## Contents

[Characteristics](#)[Properties](#)[Dispense Test](#)[Tack Time](#)[Solder Spreading](#)[Copper Mirror Corrosion](#)[Copper Plate Corrosion](#)[SIR](#)[ECM](#)[Halogen Content](#)[Handling Guide](#)

## Halogen Content

Equipment: Quartz-tube combustion ion chromatography

Test standard: JEITA ET-7304A

Halogen content (wt%)

Elements	Results
F	Not detected
Cl	Not detected
Br	Not detected
I	Not detected

No halogen is added intentionally.



## Contents

Characteristics

Properties

Dispense Test

Tack Time

Solder Spreading

Copper Mirror Corrosion

Copper Plate Corrosion

SIR

ECM

Halogen Content

Handling Guide

## Handling Guide

### 1. Recommended Dispensing Condition

#### (1) Dispensing (Straight nozzle)

1. Needle inner diameter: 20 G and larger (0.61 mm~)
2. Material: Metal
3. Dispense pressure: 0.2MPa

#### (2) Usage ambient

1. Temperature: 25+/-3 °C
2. Humidity: 40~60 %RH

\* This Product Information contains product performance assessed strictly according to our own test procedures and is not the guaranteed results at end-users. Please conduct thorough process optimization before mass production application.

### 2. Product Life

16~30°C (Storage temperature): 9 months from the date of production.

### 3. Container

Available in syringe from various manufacturers in 5, 10 and 30 g.

### 4. Caution: For consistent dispense volume, adjust the temperature of the dispenser and make sure that the temperature of the product matches with the dispenser.

To store this product after use, put the syringe cap back on and store at vertical position in a room maintained at 16~30°C.

#### \* How to interpret the lot number

e.g. Lot No. 9 06 21 2

- number of the production batch: 2nd
- date of production: 21st
- month of production: June
- year of production: 2019



## Contents

Characteristics

Properties

Dispense Test

Tack Time

Solder Spreading

Copper Mirror Corrosion

Copper Plate Corrosion

SIR

ECM

Halogen Content

Handling Guide

## Handling Guide – Recommended Reflow Profile (w/ Sn96.5, Ag3.0, Cu0.5)

