Halogen-free Rosin Core Solder (NH Series)

Of all solders, halogen-free solder is the most considerate to people and the environment. Materials containing halogen are added to solder fluxes to increase workability but have recently gained attention because they release dioxins when burned. With this new lineup, Almit has introduced halogen-free products that manage to maintain the came workability of halogen based solder, while helping the environment.

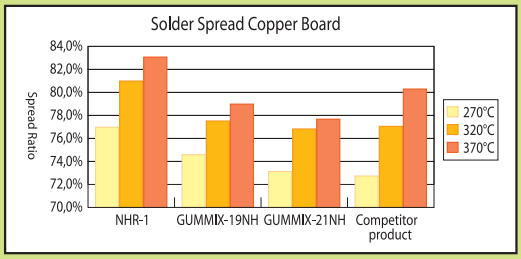
Halogen-free Specifications

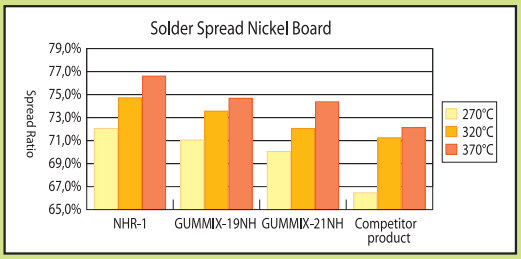
Element	General Required Specifications	
Chlorine (Cl)	900ppm or below	Total of 1500ppm or below
Bromine (Br)	900ppm or below	
Fluorine (F)	Unintended	
Iodine (I)	Unintended	

NH-Series

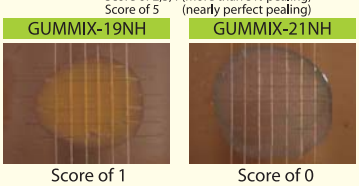
Considering the expanding demand for halogen-free, we`ve prepared non-halogen solder wire, all rosin core. Choose from the following products that work with many applications.

Product Name		NHR-1 LFM-48	GUMMIX-19 NH LFM-48	GUMMIX-21 NH LFM-48	Competitor product	Features
Flux Name		NHR-1	GUMMIX-19NH	GUMMIX-21NH	–	
Alloy Name		LFM-48	LFM-48	LFM-48	–	
Alloy Composition		Sn-3,0Ag-0,5Cu	Sn-3,0Ag-0,5Cu	Sn-3,0Ag-0,5Cu	Sn-3,0Ag-0,5Cu	
Melting Temperature (solid/ liquid)		217°C/220°C	217°C/220°C	217°C/220°C	217°C/220°C	
Flux Content		3,5%	3,5%	3,5%	P-3	
Dispersal Test (soldering iron temperature)	350°C	25,8	2,0	2,6	32,4	
	380°C	21,0	0,6	0,8	24,8	
Residual Flux Assessment	Cross-cut Test	Class 5	Class 1	Class 0	Class 5	see picture*1
	Bending Test	Flux produced	No flux produced	No flux produced	Flux produced	see picture*2
	Low Temperature	Flux produced	Flux produced	No flux produced	Flux produced	see picture*3
Features		Rosin type Good workability	Anti-flux dispersion Anti-residual peeling Good workability	Anti-flux dispersion Improved anti-residual peeling	Non-halogen product	



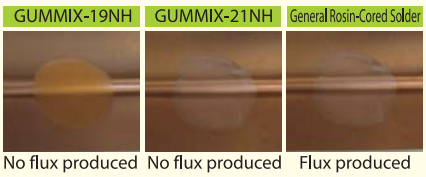


*1 Cross-cut Test
Evaluated Method: in accordance with JIS-K-5600-5-6
Methods Criteria: Score of 0 (No peeling)
Score of 1 (less than 5% pealing)
Score of 2,3,4 (more than 5% pealing)
Score of 5 (nearly perfect pealing)



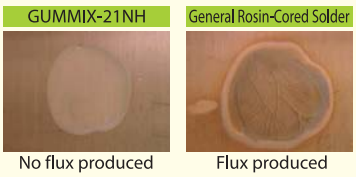
Score of 1 Score of 0

*2 Copper Board Bending Test
Evaluated Method: A test piece is used from the cross-cut test. The copper board is bent 90 degrees and residual flux cracks are observed.



No flux produced No flux produced Flux produced

*3 Low -temperature Shelf test
A test piece is used from the solder spread method and placed in a refrigerator for 48 hours at -20°C. Afterward residual cracks are observed.



No flux produced Flux produced

Product name component of cored solder

GUMMIX 19NH LFM-48 3,5% 0,5Ø

Flux Name + Alloy Name + Flux Content + Wire Diameter

Cored Solder Specification

Flux Name	Alloy composition	Melting Temperature	Flux Content	Diameter (mm)	Alloy Features
NHR-1	LFM-48 (Sn-3,0Ag-0,5Cu)	217-220°C	3.5%	0.5, 0.65, 0.8, 1.0	JEITA alloy
GUMMIX-19 NH	LFM-48 (Sn-3,0Ag-0,5Cu)	217-220°C	3.5%	0.5, 0.65, 0.8, 1.0	JEITA alloy
GUMMIX-21 NH	LFM-48 (Sn-3,0Ag-0,5Cu)	217-220°C	3.5%	0.5, 0.65, 0.8, 1.0	JEITA alloy

* LFM-48 has been sublicenced for JP PAT No. 3027441 and US PAT No. 5527628

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