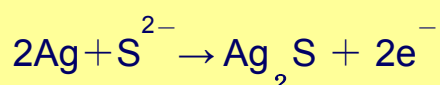


Sulfuration is a phenomenon that the inner electrodes (**Ag/Pd-type material**) of chip resistors react with **sulfur gas** which creates silver sulfide. As sulfuration proceeds, the conduction of the inner electrode will be lost and the chip resistor gets disconnected.

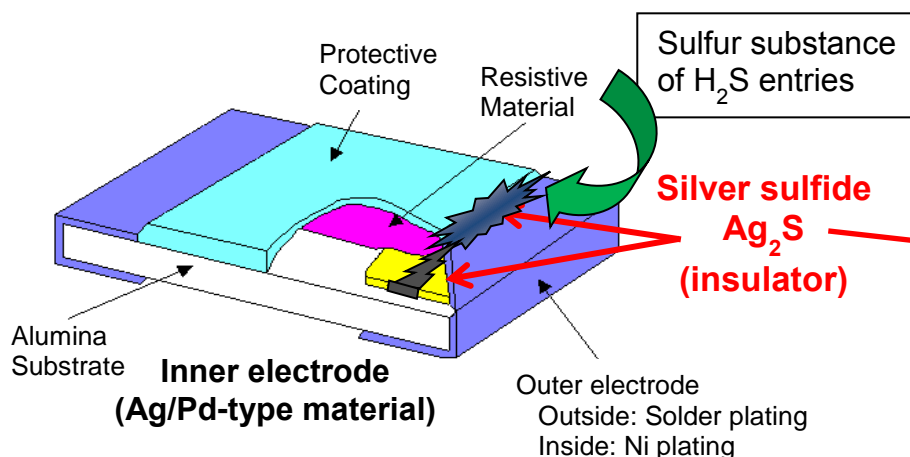
Sulfuration Phenomenon of Standard Chip Resistors

<Chemical Reaction of Silver and Sulfur>



Needle crystal of Ag_2S

Needle crystals appeared outside of chip resistor



■ Examples of Critical Environment

- Oil or grease for machine tools and gears sometimes includes sulfur substances
- Oil with high amount of impurities and exhaust gas after combusting the oil contains sulfur gas
- Rubber products or areas near rubber manufacturing plants
- Where fossil fuels are handled or used
- In case a PCB is molded by rubber sealing which includes sulfur
- In case components which generate sulfur are mounted in the surrounding (e.g. molded coatings which includes sulfur)
- Areas where volcanic gases are emitted
- Areas of biological gas cracking plants
- Near waste dumps / waste disposal sites

For more information, please contact:

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Anti Sulfuration Resistors

NEW: Expanded Line-up



KOA's special anti-sulfuration resistors are intended to be used under harsh environment with a high level of sulfur contamination.

A high reliable material with extremely high sulfuration-proof characteristics is used in the inner top electrodes.

Thanks to technical know-how of sulfuration-proof material, KOA has been able to achieve an extremely high level of sulfuration-proof performance.

KOA's Anti-Sulfur Resistors Line-up

Resistors use anti-sulfur material for inner top electrodes

| General purpose | High precision | Anti-surge | High power (wide terminal) | High voltage | Network arrays |
|---|-----------------|---|--|--|---|
| RK73B-RT RK73H-RT *added 1F/1H RK73Z-RT (Jumper) | RK73G-RT | SG73-RT SG73S/P-RT (High precision) | WK73-RT | HV73-RT | CN-RT CN-KRT *added CN1J4K-RT |
| | | | | | |
| Low ohm resistors (current detection) | | | | | |
| | | | SR73-RT | WK73S-RT | |
| | | | NEW | Developing | |

The low ohm resistor series **WK73S** in the resistance range below 1 ohm will be added soon to KOA's anti-sulfuration product portfolio.

If it's intended to use products under harsh environment (under high density of sulphur), KOA recommends using the "Anti-Sulfuration Flat Chip Resistors" as a perfect measure.

■ Product Features

- Excellent anti-sulfuration characteristic due to using high-sulfuration-proof inner top electrode material
- Available for several standard product series (like RK73, SG73, CN)
- Intended for use under harsh environment

■ Application Examples

- Industrial control systems
- Automotive
- Electric instrumentation
- Power meter / conditioner
- Solar / wind inverter circuits
- Avionics

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