

OCMA-500 series extracts the oil content of a sample with solvent S-316, and measures the oil content with an IR analyzer. OCMA-500 series is able to measure both low oil concentration and volatile oil. OCMA-550, manual operation model, measures residual oil of components of all shapes and sizes. This instrument is user-friendly for various usages such as drainage control, environmental protection and quality control.



The Residual Oil Measurement on Components

Application: Residual Cutting Oil on Components

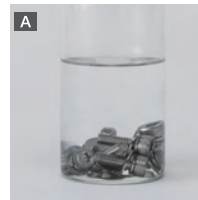
Cutting oil is an essential for cutting metals to control friction heat and cool metals. Residual cutting oil on components, however, needs to be removed by cleaning after the cutting process because the oil could be the cause of accidents such as an unusual noise or smell. Easy-operating OCMA-550 is useful for controlling the residual cutting oil on components after the cleaning process to prevent accidents, and also helps keep track of the degradation of oil to determine the timing to exchange the oil.



Measurement Procedure

Small components Screw: M3 x 8 mm (25 pieces)

- Place 25 screws into a beaker and apply 15 ml of solvent. At this moment, check the screw quantity and the amount of solvent. **A**
- To extract the oil, soak the sample in solvent for at least 1 hour or use an ultrasonic cleaner for 30 seconds. After extraction process, pick the components out from beaker.
*Ultrasonic cleaner is strongly recommended to increase extractability.
*Do not put the beaker into ultrasonic cleaner over 30 seconds. The surface of components might be peeled off.
- Set the measurement unit on OCMA to mg/PC and input the number you recorded in ①.
*PC = Piece: shows the oil concentration per piece
- Apply the solvent from ② and perform measurement. **B C**
*Pre-measurement is required. Reference: P. 32 to P. 33 of the instruction manual



Soak sample into solvent for extraction



Apply the solvent into cell



Set the cell to the equipment



If the component is bigger than the beaker, pour the solvent on the component to extract oil on uneven surfaces

[Estimated solvent consumption per measurement]

- Pre-Measurement : 6.5 ml per cell
 - Measurement : 6.5 ml per cell
 - Pre-washing : 2 ml (2 times, 1 ml per wash)
- All above, at least 15 ml of solvent is required for a measurement.
*The amount of solvent may differ depending on the size of components.

Image is for illustration purpose only

Big components Stainless steel: 105W x 90W x 50H mm (1 piece)

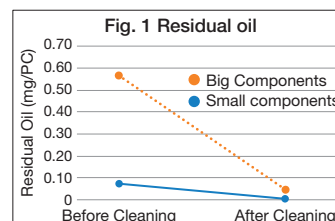
- Pour 20 ml of solvent all over the component **D**
- Pour the solvent which is used in ① on the component again. It is recommended to repeat this process at least 5 times to increase the extractability.
*The number of times for pouring depends on the shape and size of the component.
*Pour the solvent well especially on areas that are difficult for the solvent to reach.
- Measure the weight of solvent in ②.
- Set the measurement unit on OCMA to mg/PC and put the number you recorded on ③.
- Apply the solvent from ② to the equipment and perform measurement. **B C**

Examples of oil extraction for various shapes of samples

Types of surfaces and shapes	Oil extraction
Wide and flat surface (e.g. iron plate)	Wipe the surface with a cloth soaked with solvent and extract the oil content.
Tube shape (e.g. air condition pipe)	Cover one side of the tube, pour solvent into the tube, cover the other side of the tube, and shake the tube to extract the oil.
Thin metal plate (e.g. copper foil)	Cut the metal plate into small pieces and soak it into a beaker contain solvent.
Long and Slim Shape (e.g. Stick)	Use a measuring cylinder instead of a beaker to soak the item entirely.

Conclusion

According to Fig. 1, it can be said that the cleaning process was successful as the value had been decreased from 0.07/0.057 to 0.00/0.04 (mg/PC) after the cleaning process. By using OCMA-550, residual oil on components can be measured efficiently and qualitatively.



Sample	Before cleaning (mg/PC)	After cleaning (mg/PC)
Small Parts	0.07	0.00
Big Parts	0.57	0.04

The measurement method of the application note is for your reference only.