Thermal Analysis Excellence

CS CERAMIC CO.,LTD (Manufactory of crucibles in China)

Crucibles Overview

DSC

TGA/SDTA

TGA/DSC

Crucibles

for Thermal Analysis

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ADD:Chashan Town Liling City Hunan Province ,China

Extremely Wide Crucible Range

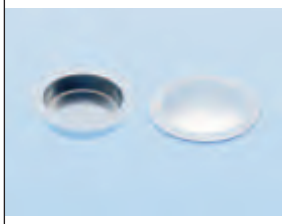
cs ceramic co.,ltd

Aluminum crucible standard

40 µL crucibles with lids
Set of 100 pcs
without pin ME-00026763
with pin ME-00027331

40 µL crucibles without lids
Set of 400 pcs
without pin ME-51119870

Piercing lid
Set of 400 pcs
ME-51119873



This is the standard type of pan for DSC measurements – it is very shallow (low in height) and has a strong flat base (this ensures **that temperature gradients are as low as possible).**
Hermetically sealed: to suppress the endothermic evaporation, vaporization or sublimation of volatile substances in the DSC.
The maximum pressure is 0.2 MPa.
Comment: Particularly with TGA measurements using the sample changer, it is possible that the sample can partially dry out or take up moisture or oxygen from the laboratory air. This can be pre vented with an aluminum lid. The lid (see cover) is automatically pierced before transfer to the measuring cell (3 needle diameters: 0.1 mm, 0.7 mm and 1.0 mm).
50 µm hole in the lid: for measurements in a self-generated atmosphere. Overlapping decomposition reactions are often better separated.
Large hole in the lid (0.35 mm to 2 mm): the atmosphere in the pan is practically the same as in the furnace, but substances are prevented from creeping out of the pan or spluttering.

Aluminum crucible light

20 µL crucible with lids
Set of 100 pcs
without pin ME-51119810

The light aluminum pan gives the shortest signal time constant, especially when using helium as a purge gas. The pan is particu larly suitable for measuring polymer films, disks and powders – the **samples are pressed down tightly against the base of the pan. It is less suitable for liquid samples because liquids might be squeezed out of the pan on sealing.**
The narrow space between the pan and the lid leads to the formation of a self-generated atmosphere. Piercing the lid beforehand allows contact with the atmosphere. A special die set is required for the crucible sealing press.

Aluminum crucible

160 µL crucible with lids
Set of 40 pcs
with pin ME-00027811

This very large crucible is used for DSC measurements of samples that exhibit very weak effects. Temperature gradients within the sample are to be expected because of the height of the crucible, which is the reason why measurement peaks are somewhat broader. For the same reason, heating rates of more than 10 K/min should not be used. The crucible is sealed just like a standard pan.

Aluminum crucible

100 µL crucible without lids
Set of 400 pcs
without pin ME-51119872

This crucible allows you to use larger quantities of sample if the signal obtained from the sample in a 40 µL pan is too weak.
The crucible is sealed just like a standard pan.

Copper crucible

40 µL crucible without lids
Set of 100 pcs
without pin ME-51140407

The copper pan is supplied without a lid. It is almost exclusively used for the determination of oxidative stability (OIT) in the presence of copper, which exerts a catalytic effect. Usually the induction time measured in this way is compared with the value obtained with an inert aluminum pan.

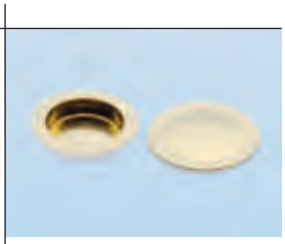
Platinum crucible

Pt crucible with lids
Set of 4 pcs
without pin
30 µL ME-51140842
70 µL ME-51119654
150 µL ME-00024126

Platinum crucibles are mainly used for TGA or DSC measurements at temperatures above 640 °C. SDTA and DSC curves measured with platinum crucibles are usually better than those obtained using crucibles made of alumina, which has a poorer thermal conductivity.
They can also be reused. After mechanical cleaning store them, if need be, in water (or even in 10% hydrochloric acid) because many salts are soluble in water. Oxides form chlorides in hydrochloric acid, which can then be removed by rinsing. After drying, heat the crucibles to red heat to ensure that no weight loss occurs when they are used.
Warning: Molten metals form alloys with platinum very easily. This can result in a hole being formed in the bottom of the crucible. And soot (or carbon black) is a so-called platinum poison in a non-oxidizing atmosphere. In the 1600 °C furnace, a crucible can stick to the crucible holder, which is also made of platinum. This can be prevented by placing a sapphire disk (ME-00017759) on the crucible holder.

Gold crucible

40 µL crucibles with lids
Set of 6 pcs
without pin ME-00027220



The gold pan is chemically resistant and would be used much more frequently if it were not so expensive. Apart from some types of the aluminum pans, it is the only pan that can be hermetically sealed by cold welding. However, the gold surface becomes dirty during longer periods of storage, which makes cold welding more difficult. To clean the pan and lid, we recommend that you heat **them to about 500 °C for a short time prior to use (heat cleaning). The maximum pressure is 0.3 MPa. Warning: Molten metals easily from alloys with gold; this can result in a hole being formed in the bottom of the pan.**

Medium pressure crucible
Stainless steel

120 µL crucibles with lids and FPM O-rings
Set of 25 pcs
with pin ME-00026929
without pin ME-00029990

The medium pressure crucible is sealed with an FPM O-ring. FPM is slightly permeable to water vapor.
If this causes problems with aqueous solutions, O-rings made of Kel-F (polytrifluorochloroethylene, PCTFE from 3M) **are also available (ME-00026933); PCTFE however shows a DSC melting peak at about 220 °C. The maximum pressure is 2 MPa. In order to seal the crucible, the crucible sealing press must be equipped with a special die set.**
The crucible can also be sealed without using an O-ring (self-generated atmosphere). Finally, the crucible (and the lid) can be used individually as open crucibles (e.g. for TGA measurements).

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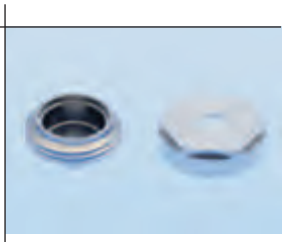
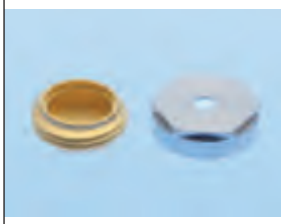
High pressure crucible
Stainless steel

30 µL crucibles with lids,
seals not included
Set of 3 pcs
without pin ME-51140404



High pressure crucible
Stainless steel, gold plated

30 µL crucibles with lids,
seals not included
Set of 3 pcs
without pin ME-51140405



Seal
Copper, gold-plated

Set of 60 pcs
ME-51140403

The relatively light and flat construction of the crucible results in **low temperature gradients. Compared to the larger pressure tight crucibles, it gives better DSC signals. The thread and the sealing** tool with defined torque enable the crucibles to be easily and se**curely sealed. After the measurement, the crucible can be opened, cleaned and reused about 20 times using a new gold-plated cop per seal each time. If the gold-plated crucible is used at tempera tures above 350 °C, the crucible and the seal are welded together.**

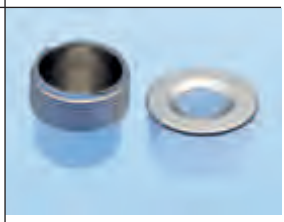
High pressure crucible
Stainless steel, gold plated

40 µL crucibles with lids and
seals
Set of 25 pcs
without pin ME-00026731
with pin ME-00026732

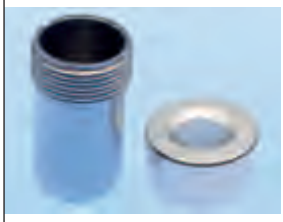
These gold-plated high pressure crucibles, which can be pressed together, have proven to be very useful for safety investigations. They can only be used for one measurement. The maximum pres sure is 15 MPa.
The lid is pressed into the crucible with a pressure of about a ton so that the seal tightens the crucible.
A toggle press is used to close the crucible.

High pressure crucible
nimonic

270 µL crucible with lid
1 pce
with pin ME-00650072



500 µL crucible with lid
1 pce
with pin ME-00650066



Seal
1 pce
ME-00027216

Nimonic 80A is a temperature resistant alloy made of Ni, Cr, Ti and Al. The crucible can be sealed thanks to its thread using a special sealing tool. After the measurement, it can be opened, cleaned and reused about 20 times with a seal disk each time. The maximum pressure is 10 MPa.
When sealed, the 270 µL crucible has a height of about 10 mm and is therefore too high for the DSC (the furnace body can be extended using the so-called furnace expander (ME-51140735) provided the sample changer is not used). The 500 µL crucible is 16 mm high and is therefore only suitable for use with TA4000 measuring cells with the flat lid.

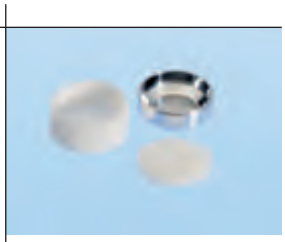
Sapphire crucible
70 µL crucibles with lids

Set of 4 pcs
ME-51140845

Sapphire is a very pure form of monocrystalline aluminum oxide. This is the reason why a sapphirecrucible is chemically more resistant than a polycrystalline alumina (aluminum oxide) crucible. The crucible is also recommended for melting metals such as Fe and Ni.

Alumina crucible
30 µL crucibles with lids
Set of 20 pcs ME-51140843

Special aluminum lids
Set of 40 pcs ME-51119649



Alumina crucible
70 µL crucibles with lids
Set of 20 pcs ME-00024123

Special aluminum lids
Set of 40 pcs ME-51119649

Alumina crucible
150 µL crucibles with lids
Set of 20 pcs ME-00024124

Special aluminum lids
Set of 40 pcs ME-51140477

Alumina crucible
900 µL crucibles with lids
Set of 4 pcs ME-51119960

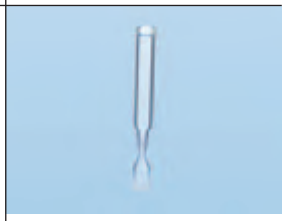
Special aluminum lids
Set of 40 pcs ME-51140469

Alumina (aluminum oxide) crucibles are the crucibles that are normally used for TGA measurements, above all when the TG signal, and not the SDTA signal, is important. These crucibles can be reused. After mechanical cleaning, store them, if need be, in water (or possibly even in 10% hydrochloric acid) because many salts are soluble in water. Oxides form chlorides in hydrochloric acid, which can then be removed by rinsing. After drying, heat the crucibles to red heat to ensure that no weight loss occurs when they are used.

Special aluminum lids for the alumina crucibles and the sapphire crucible. They are removed by the sample changer during the TG measurement.

Glass crucible
100 µL

Set of 50 pcs
without pin ME-00027812



These Duran glass crucibles have the advantage that they are trans parent and are chemically resistant. The sample is filled through the **neck of the glass crucible. The crucible is sealed by melting the neck** in a small flame. A special holder (ME-00027815) is available that **allows the sample to be cooled during sealing. The maximum pressure is 5 MPa.**
When sealed, the crucible has a height of about 10 mm and is there fore too high for the DSC82x (the furnace body can be extended using the so-called furnace expander (ME-51140735) provided the sample changer is not used).