



TERMOGRAVIMETRİK ANALİZÖR

TGA THERMOSTEP

Termogravimetri organik, inorganik ve sentetik malzemeler analiz etmek için standart bir yöntemdir. Genel olarak Termogravimetrik analizi kullanıcı tanımlı bir sıcaklık ya da ısıtma işlemi sırasında ağırlık kaybı ölçümü anlamına gelmektedir.

ELTRA TGA thermostep analiz cihazı kullanıcı tanımlı sıcaklık ve atmosfer de nem, uçucu ve kül gibi çeşitli parametreler belirleyen bir termogravimetrik analizördür. TGA thermostep aynı anda 5 g kadar örnek ağırlıkları ile 19 kadar numune analizi yapar ve 1000oC sıcaklıklara kadar çalıştırılabilir.

TGA thermostep bir özelliği pota kapakları yönetimi. Analizör analiz sırasında potalar ve kapakları yerleştirip ve kaldırabilirsiniz. Bu özellik, örneğin kömür ve kok uçucu içeriğinin kesin olarak belirlenmesi için izin verir.

FAYDALARI

- | Measurement of up to 19 samples in one analysis
- | Sample weights of up to 5 g
- | Fast heating rates, accurate temperature control
- | High-performance, precise weighing cell
- | Automatic placing and lifting of crucible covers
- | Robust design allows for use in laboratories and production

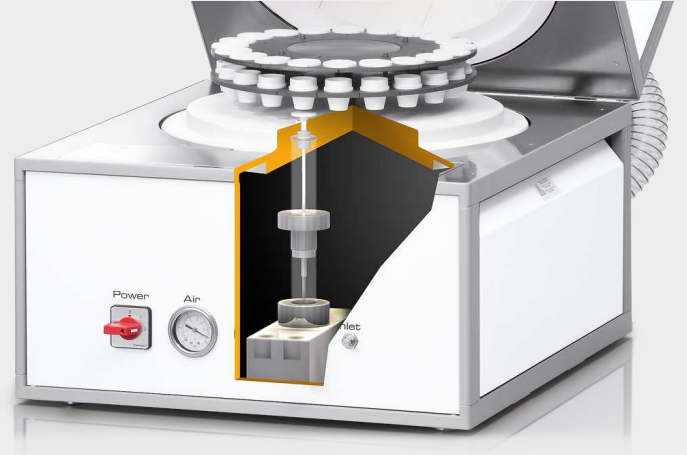


TERMOGRAVIMETRIK ANALİZÖR THERMOSTEP TGA

RELIABLE AND FLEXIBLE

ELTRA TGA analyzers are an ideal alternative to standard laboratory ovens and muffle furnaces for thermogravimetric analysis. Thanks to a programmable furnace that is connected to an integrated balance, heating and weighing are combined in one instrument. This saves time-consuming manual work and allows for high sample throughput. In addition, typical parameters such as moisture, ash and volatiles can be determined in one analysis run.

The TGA Thermostep processes up to 19 different samples, typically weighing between 500 mg and 5 g, in one analysis cycle. The surrounding atmosphere and temperature of up to 1,000 °C within the heating chamber can be freely defined by the user during analysis to create a standard operating procedure. The crucible lids, covering of the samples, can be raised or lowered at each stage of the analysis, thus allowing for safe and ASTM-compliant determination of volatiles in coal samples.



Encapsulated weighing cell

PRECISE RESULTS

HIGH-PERFORMANCE ANALYSIS TECHNOLOGY

The TGA Thermostep is a powerful thermogravimetric analyzer characterized by robust design, high precision and flexibility. It is possible to apply different atmospheres and to use sample weights of up to 5 g. The Thermostep reliably and efficiently measures parameters such as moisture, ash and volatiles according to a user-defined SOP.

PURGING GAS

The TGA Thermostep is very flexible with regards to the purging gas used. At each stage of the analysis either nitrogen, oxygen or surrounding atmosphere can be selected. In the latter, the surrounding atmosphere penetrates into the TGA Thermostep, gently oxidizing the samples.

TEMPERATURE CONTROL

The furnace temperature is monitored by two thermocouples which are not encapsulated. One thermocouple monitors the temperature inside the furnace, the other monitors the temperature within the heating element. Due to the absence of the encapsulation the heating can be controlled quickly and precisely.

ENCAPSULATED WEIGHING CELL

The latest TGA Thermostep generation features an encapsulated weighing cell with 0.1 mg resolution providing highly precise measurements. The encapsulation isolates the weighing cell from the ambient atmosphere and is extremely stable. The weighing cell is connected to the furnace by a ceramic spindle with pedestal on which the crucibles are placed.

HIGH-CAPACITY HEATING ELEMENTS



COOLING



TERMOGRAVIMETRIK ANALİZÖR THERMOSTEP TGA

SIMPLE OPERATION YIELDS QUICK RESULTS

Operation of the TGA Thermostep is simple, convenient and safe. After selecting the Standard Operating Procedure (SOP) in the PC, the sample ID's can be entered into the software. The samples are then weighed in the crucible at the position assigned to the sample ID in the carousel. After one sample has been weighed, the carousel automatically rotates to the next position and the next registered sample can then be weighed in the crucible. Alternatively, a carousel filled with samples which has been weighed externally, can be placed into the analyzer.

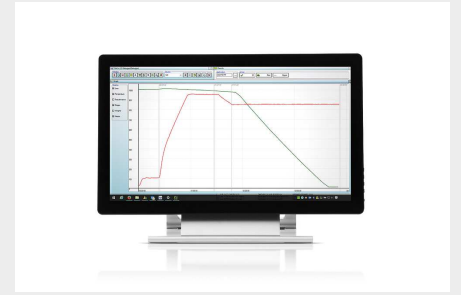
It is also possible to position a second carousel with crucible lids above the crucibles. Once the analysis is finished, a new cycle can be started after a short cool-down period.



Weighing the sample



Option: Crucible lids



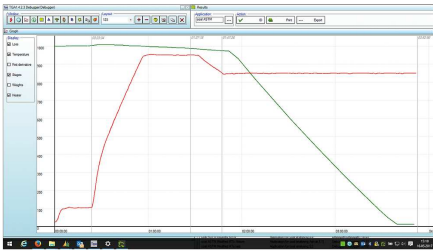
Display of analysis results

TERMOGRAVIMETRIK ANALİZÖR THERMOSTEP TGA

PC CONTROL WITH WINDOWS[®]-BASED SOFTWARE

The ELTRA TGA Thermostep software provides all necessary features for a fast, easy, safe and reliable thermogravimetric analysis.

ANALYSIS GRAPH



The TGA software can provide different content of the TGA measurement

- | Weight loss graph
- | Absolute weights
- | First deviation of weight loss
- | Temperature graph
- | Measuring stages

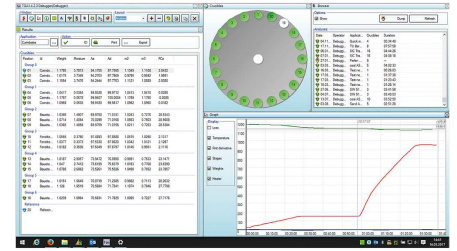
ANALYSIS RESULTS

Sample	Weight	Time	Temp	Loss	Residue
Sample 1	1.000	0.000	1000	0.000	1.000
Sample 1	1.000	1.000	1000	0.000	1.000
Sample 1	1.000	2.000	1000	0.000	1.000
Sample 1	1.000	3.000	1000	0.000	1.000
Sample 1	1.000	4.000	1000	0.000	1.000
Sample 1	1.000	5.000	1000	0.000	1.000
Sample 1	1.000	6.000	1000	0.000	1.000
Sample 1	1.000	7.000	1000	0.000	1.000
Sample 1	1.000	8.000	1000	0.000	1.000
Sample 1	1.000	9.000	1000	0.000	1.000
Sample 1	1.000	10.000	1000	0.000	1.000
Sample 1	1.000	11.000	1000	0.000	1.000
Sample 1	1.000	12.000	1000	0.000	1.000
Sample 1	1.000	13.000	1000	0.000	1.000
Sample 1	1.000	14.000	1000	0.000	1.000
Sample 1	1.000	15.000	1000	0.000	1.000
Sample 1	1.000	16.000	1000	0.000	1.000
Sample 1	1.000	17.000	1000	0.000	1.000
Sample 1	1.000	18.000	1000	0.000	1.000
Sample 1	1.000	19.000	1000	0.000	1.000
Sample 1	1.000	20.000	1000	0.000	1.000
Sample 1	1.000	21.000	1000	0.000	1.000
Sample 1	1.000	22.000	1000	0.000	1.000
Sample 1	1.000	23.000	1000	0.000	1.000
Sample 1	1.000	24.000	1000	0.000	1.000
Sample 1	1.000	25.000	1000	0.000	1.000
Sample 1	1.000	26.000	1000	0.000	1.000
Sample 1	1.000	27.000	1000	0.000	1.000
Sample 1	1.000	28.000	1000	0.000	1.000
Sample 1	1.000	29.000	1000	0.000	1.000
Sample 1	1.000	30.000	1000	0.000	1.000
Sample 1	1.000	31.000	1000	0.000	1.000
Sample 1	1.000	32.000	1000	0.000	1.000
Sample 1	1.000	33.000	1000	0.000	1.000
Sample 1	1.000	34.000	1000	0.000	1.000
Sample 1	1.000	35.000	1000	0.000	1.000
Sample 1	1.000	36.000	1000	0.000	1.000
Sample 1	1.000	37.000	1000	0.000	1.000
Sample 1	1.000	38.000	1000	0.000	1.000
Sample 1	1.000	39.000	1000	0.000	1.000
Sample 1	1.000	40.000	1000	0.000	1.000
Sample 1	1.000	41.000	1000	0.000	1.000
Sample 1	1.000	42.000	1000	0.000	1.000
Sample 1	1.000	43.000	1000	0.000	1.000
Sample 1	1.000	44.000	1000	0.000	1.000
Sample 1	1.000	45.000	1000	0.000	1.000
Sample 1	1.000	46.000	1000	0.000	1.000
Sample 1	1.000	47.000	1000	0.000	1.000
Sample 1	1.000	48.000	1000	0.000	1.000
Sample 1	1.000	49.000	1000	0.000	1.000
Sample 1	1.000	50.000	1000	0.000	1.000
Sample 1	1.000	51.000	1000	0.000	1.000
Sample 1	1.000	52.000	1000	0.000	1.000
Sample 1	1.000	53.000	1000	0.000	1.000
Sample 1	1.000	54.000	1000	0.000	1.000
Sample 1	1.000	55.000	1000	0.000	1.000
Sample 1	1.000	56.000	1000	0.000	1.000
Sample 1	1.000	57.000	1000	0.000	1.000
Sample 1	1.000	58.000	1000	0.000	1.000
Sample 1	1.000	59.000	1000	0.000	1.000
Sample 1	1.000	60.000	1000	0.000	1.000
Sample 1	1.000	61.000	1000	0.000	1.000
Sample 1	1.000	62.000	1000	0.000	1.000
Sample 1	1.000	63.000	1000	0.000	1.000
Sample 1	1.000	64.000	1000	0.000	1.000
Sample 1	1.000	65.000	1000	0.000	1.000
Sample 1	1.000	66.000	1000	0.000	1.000
Sample 1	1.000	67.000	1000	0.000	1.000
Sample 1	1.000	68.000	1000	0.000	1.000
Sample 1	1.000	69.000	1000	0.000	1.000
Sample 1	1.000	70.000	1000	0.000	1.000
Sample 1	1.000	71.000	1000	0.000	1.000
Sample 1	1.000	72.000	1000	0.000	1.000
Sample 1	1.000	73.000	1000	0.000	1.000
Sample 1	1.000	74.000	1000	0.000	1.000
Sample 1	1.000	75.000	1000	0.000	1.000
Sample 1	1.000	76.000	1000	0.000	1.000
Sample 1	1.000	77.000	1000	0.000	1.000
Sample 1	1.000	78.000	1000	0.000	1.000
Sample 1	1.000	79.000	1000	0.000	1.000
Sample 1	1.000	80.000	1000	0.000	1.000
Sample 1	1.000	81.000	1000	0.000	1.000
Sample 1	1.000	82.000	1000	0.000	1.000
Sample 1	1.000	83.000	1000	0.000	1.000
Sample 1	1.000	84.000	1000	0.000	1.000
Sample 1	1.000	85.000	1000	0.000	1.000
Sample 1	1.000	86.000	1000	0.000	1.000
Sample 1	1.000	87.000	1000	0.000	1.000
Sample 1	1.000	88.000	1000	0.000	1.000
Sample 1	1.000	89.000	1000	0.000	1.000
Sample 1	1.000	90.000	1000	0.000	1.000
Sample 1	1.000	91.000	1000	0.000	1.000
Sample 1	1.000	92.000	1000	0.000	1.000
Sample 1	1.000	93.000	1000	0.000	1.000
Sample 1	1.000	94.000	1000	0.000	1.000
Sample 1	1.000	95.000	1000	0.000	1.000
Sample 1	1.000	96.000	1000	0.000	1.000
Sample 1	1.000	97.000	1000	0.000	1.000
Sample 1	1.000	98.000	1000	0.000	1.000
Sample 1	1.000	99.000	1000	0.000	1.000
Sample 1	1.000	100.000	1000	0.000	1.000

The results table displays the current available measurement data.

- | Display of new results after every measuring step
- | Results can be calculated as analysed or on dry base
- | Optional grouping for multiple measurements of one sample type

USER DEFINED SCREEN LAYOUT



For a better overview on the current analysis status, the user can create an own layout of the screen

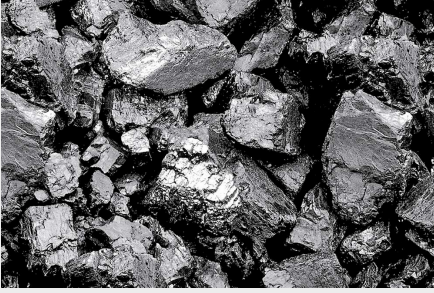
- | Measuring graphs
- | Current results
- | Position of the carousel
- | Diagnosis screens

TERMOGRAVİMETRİK ANALİZÖR THERMOSTEP TGA

UYGULAMALAR

Due to the flexible application management the TGA Thermostep can measure TGA parameters in many samples like coal, Kok, Yapı malzemeleri, Gıda ...

ANALYSIS OF COAL & COKE



The TGA Thermostep can determine the parameter moisture, volatile and ash in one analysis cycle due the automatic placing and removing of lids. The TGA is compliant to ASTM D 7582.

ANALYSIS OF BUILDING MATERIALS



Building materials require the measurement of moisture and loss on ignition (LOI). The LOI can indicate the presence of organic matter or carbonates.

ANALYSIS OF FOOD



Some foods like pet foods, biscuits, or milk require the measurement of dry mass and ash content. Due to the encapsuled weighing cell even the ash content of flour could be measured safe and precise.

FONKSIYON PRENSİBİ

TGA thermostep basit ve kullanışlıdır. Ölçüm işlemi için, kullanılan sıcaklık, atmosfer ve ısıtma aralıkları bir kez tanımlanmalıdır. Analizi başlatmak için, yazılımda bulunan önceden tanımlanmış proseslerden biri seçilmeli ve numune kroze içerisinde tartılmalıdır. Kalan tüm adımlar otomatik olarak gerçekleşir. Tüm veri işleme, ölçüm sürecinin kontrolü ve sonuç hesaplama işlemleri Windows ® tabanlı yazılımı olan harici bir bilgisayar tarafından yapılır. Nem, uçucu madde ve kül içeriği tayinleri yaklaşık 4 saat sürer.

TERMOGRAVIMETRİK ANALİZÖR THERMOSTEP TGA

TEKNİK VERİ

Ölçülen elementler	kül içeriği, nem, uçucular
Numuneler	inorganik, organik, sentetik
Uygulama alanı	biyoloji, kimya / plastik..., tarım
Fırın	rezistans ısıtıcılı seramik fırını
Tespit metodu	Terazi
Maksimum numune sayısı	19 kroze + 1 referans krozesi
Terazi çözünürlüğü	0.0001 g
Terazi hassasiyeti	0.02 % RSD
Gerekli gaz	uygulamaya bağlı olarak: 99,9 % oksijen
Güç Gereksinimleri	"230 V, 50/60 Hz, max. 32 A"
Ebatlar (G x Y x D)	55 x 52 x 62 cm
Ağırlık	~ 65 kg
Gerekli ekipmanlar	PC, monitör, harici egzoz (egzoz çapı: 100 mm / 4m ³ / dak ile üfleyici)

www.eltra.com/thermostep

SIPARIŞ BİLGİSİ

ELTRA TGA THERMOSTEP

(Lütfen PC sipariş edin, ayrıca monitör ekleyin / ABD'de satışta yok)

88100-3001



2 karusel, 20 seramik pota ve 20 kapaklı TGA Thermostep

GEREKLI AKSESUARLAR

PC, MONİTÖR

71015-1000

Intel Core i5-8400 İşlemci, 256 GB SSD olan bilgisayar; 8 GB RAM; Windows 10 işletim sistemi; klavye; mouse

88400-0584

Monitor, TFT (23.8")

DIĞER SEÇENEKLER VE SARF MALZEMELERİ

AKSESUARLAR (DONANIM)

72070

Oksijen regülatörü

72080

Azot regülatörü

26085

Harici tartım istasyonu

26102

Terazili harici tartım istasyonu

26794



Kroze karuseli (seramik)

26795

Lid carousel (ceramic)

KROZELER, KAPAKLAR

26063



Seramik krozeler

26053



Seramik kapak

YARDIMCI İŞLEM ARAÇLARI: SPATULA, CIMBIZ, MAŞA VE DIĞERLERİ

23111		Spatula, 1 adet, L boy
88400-0229		Cımbız (160 mm), kıvrımlı, 1 adet
88400-0472		Cımbız (145 mm), düz, 1 adet
88400-0475		6 spatula ve 1 cımbız seti, çoklu tartım prosedürleri için
88400-0477		Tartım teknesi, 1 adet, granüllerin tartılması ve kullanılması için
90145		Seramik potalar ve tekneler için maşa, 220 mm, 1 adet

BAKIM İÇİN ARAÇLAR

71010		Fırça, 16 mm, 1 adet, teraziyi tozdan temizlemek için
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KALIBRASYON MALZEMELERİ

Kalibrasyon malzemeleri, mevcut partiye bağlı olarak küçük farklılıklar gösterebilir.
Mevcut sertifikayı görmek için lütfen www.ELTRA.com adresini ziyaret edin.

KALSIYUM OKSALAT

90700-1040		Kalsiyum oksalat, 50 g
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KÖMÜR, PREMIUM: SERTİFİKALI C / H / N / S; KÜL, UÇUCU İÇERİK

92550-3010		Kömür, premium, 50 g, < 1.0 % S
92550-3020		Kömür, premium, 50 g, > 1 % S
92550-3040		Kömür, premium, 50 g, 1.0 – 3.0 % S
92550-3060		Kömür, premium, 50 g, > 3.0 % S

KOK KÖMÜRÜ, PREMIUM: SERTİFİKALI C / H / N / S; KÜL, UÇUCU İÇERİK

92560-3010



Kok, premium, 50 gr

PET KOK, PREMIUM, C / H / N / S, KÜL, UÇUCU İÇERİK SERTİFİKALI

92570-3020

Pet kok, premium, 50 g, > 1 % S

92570-3040

Pet kok, premium, 50 g, > 1 % S

Lütfen dikkat: TGA Termostep, ayrıca sipariş edilmesi gereken PC ve monitör gerektirir