

FLUXANA

Your supplier for
XRF Application Solutions

HD

ELEKTRONIK
Fusion machines

Vulcan - Fusion Technology



VULCAN 4MA

Tools:

- Fusion machine
- Flux
- Flux mixtures for specific applications
- Platinum ware
- Applications
- Sample Storage

The fusion technology is used to prepare samples to be analyzed with an X-ray fluorescence machine. It is also used to improve precision over pressed powder technology.

Using your Vulcan in combination with the extractor hood will ensure that every bead is produced under the same constant conditions!

VULCAN MA

■ Automatic version

- No manual adjustment of the flames
- Full microprocessor control
- Applications with variable temperature setting possible
- High flexibility for all types of applications
- Storage of 10 different programs



VULCAN 2MA, 4MA, 6MA



| Technical Data | Vulcan 2MA | Vulcan 4MA | Vulcan 6MA |
|--------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| Stations: | 2 | 4 | 6 |
| Voltage: | 110V/60 Hz 230V/50 Hz | 110V/60 Hz 230V/50 Hz | 110V/60 Hz 230V/50 Hz |
| Power: | 170 W | 210 W | 210 W |
| Temperatures: | 0-1.600 °C | 0-1.600 °C | 0-1.600 °C |
| Permiss. air pressure: | max. 6 bar | max. 6 bar | max. 6 bar |
| Permiss. natural gas press.: | 100 mbar | 100 mbar | 100 mbar |
| Permiss. propane gas press.: | 50 mbar | 50 mbar | 50 mbar |
| Permiss. oxygen gas press.: | 2 bar | 2 bar | 2 bar |
| Air consumption: | max. 1 m ³ /hr | max. 1 m ³ /hr | max. 1 m ³ /hr |
| Oxygen consumption: | max. 0,5 m ³ /hr at 3 bar | max. 1 m ³ /hr at 3 bar | max. 1 m ³ /hr at 3 bar |
| Natural gas consumption: | max. 0,66 m ³ /hr | max. 1,2 m ³ /hr | max. 1,2 m ³ /hr |
| Or LPG liquefied petroleum gas | max. 0,5 m ³ /hr at 3 bar | max. 0,6 m ³ /hr at 3 bar | max. 0,6 m ³ /hr at 3 bar |
| Length: | 600 mm | 600 mm | 600 mm |
| Width: | 530 mm | 700 mm | 700 mm |
| Height: | 300 mm | 300 mm | 300 mm |
| Weight: | ~ 40 kg | ~ 40 kg | ~ 40 kg |
| Samples per h: | 5 - 7 | 8 - 10 | 16 - 20 |

Other versions on request. Please ask for installation requirements!

Feed and mould control

- Easy fit and lift of the moulds
- It is not possible to forget the moulds
- No contact with the fusion chamber
- Longer durability of the moulds



Cover function for crucibles

- Higher temperature in the crucible (excellent for materials that do not dissolve at low temperatures)
- Higher thermal stability in the crucible
- Lower energy consumption (gases)
- Protection against contamination of the sample



VULCAN M

- **Manual version**
- Available with 2 or 4 stations
- Stable temperature of the flames
- Operation microprocessor controlled
- Storage of 10 different programs
- Time ramps can be programmed



VULCAN 2M, 4M

| Technical Data | Vulcan 2M | Vulcan 4M |
|--------------------------------|--------------------------------------|--------------------------------------|
| Stations: | 2 | 4 |
| Voltage: | 110V/60 Hz 230V/50 Hz | 110V/60 Hz 230V/50 Hz |
| Power: | 170 W | 210 W |
| Temperatures: | 0-1.600 °C | 0-1.600 °C |
| Permiss. air pressure: | max. 6 bar | max. 6 bar |
| Pressure natural gas: | 60-100 mbar | 60-100 mbar |
| or propane: | 50 mbar | 50 mbar |
| Pressure oxygen: | 2-6 bar | 2-6 bar |
| Air consumption: | max. 1 m ³ /hr | max. 2 m ³ /hr |
| Oxygen consumption: | max. 0,5 m ³ /hr at 3 bar | max. 1 m ³ /hr at 3 bar |
| Natural gas consumption: | max. 0,66 m ³ /hr | max. 1,2 m ³ /hr |
| Or LPG liquefied petroleum gas | max. 0,5 m ³ /hr at 3 bar | max. 0,6 m ³ /hr at 3 bar |
| Length: | 600 mm | 600 mm |
| Width: | 530 mm | 530 mm |
| Height: | 300 mm | 300 mm |
| Weight: | ~ 40 kg | ~ 40 kg |
| Samples per h: | 5 - 7 | 8 - 10 |

Other versions on request. Please ask for installation requirements!

VULCAN ICP/AAS

- **Automatic version**
- available as pure ICP – device with 4 or 6 stations
- also available as a mix of XRF and ICP stations, for e.g. 21 MA, 22 MA, 31 MA, 32 MA, 41 MA and 42 MA (first number indicates the XRF-stations, the second the ICP-stations)
- speed of the magnetic stirrer is adjustable
- for technical details please see table of Vulcan MA (Page 2)

Other versions on request.

PTFE-Cup

- PTFE-Cup for Vulcan ICP/AAS (Item no.: VU-0007)
- capacity 500 ml
- height 120 mm, diameter 75 mm



ACCESSORIES

The extractor hood

Using your Vulcan in combination with the extractor hood will ensure that every bead is produced under the same constant conditions, like temperature, circulation of air, stability of the flames!

The extractor hood will take off all vapors and fumes, which will develop during the fusion, so that your health will be protected and the durability of your Vulcan will be extended.

- aluminium profile rack, cover and drain made off high-grade steel
- heat resistant glass
- constant circulation (no tilting of the flames)
- height 1450 mm, width 900 mm, depth 850 mm
- motor (230V/50Hz/90mA) continuously variable till 2760 r.p.m also 110V version available.



The table

- together with the Vulcan and the hood this table forms a professional setup
- the table has an integrated drawer for all needed accessories
- manufactured of robust steel
- height 750 mm, width 910 mm, depth 760 mm



Flux

Borate flux with guaranteed purity from own production.
All fluxes are delivered with a certificate of analysis.

Anhydrous homogeneous pre-fused fluxes with a low loss on ignition and defined granulometry.

With these fluxes the sample will be dissolved totally in a borate glass with a perfect surface.

- Non hygroscopic
- Dust < 1%
- Special fluxes on request
- > 99,98%



| Item No. | Description | Quantity in kg |
|-------------|--|----------------|
| FX-X100-2 | Lithium tetraborate | 2 |
| FX-X100-25N | Lithium tetraborate | 25 |
| FX-X65-2 | Lithium tetraborate : Lithium metaborate 66:34 | 2 |
| FX-X65-25N | Lithium tetraborate : Lithium metaborate 66:34 | 25 |
| FX-X50-2 | Lithium tetraborate : Lithium metaborate 50:50 | 2 |
| FX-X50-25N | Lithium tetraborate : Lithium metaborate 50:50 | 25 |
| FX-X20-2 | Lithium tetraborate : Lithium metaborate 20:80 | 2 |
| FX-X35-2 | Lithium tetraborate : Lithium metaborate 35,3:64,7 1.2:2.2 | 2 |
| FX-X00-2 | Lithium metaborate | 2 |

Special Additives

| Item No. | Description | Quantity |
|----------|--|---------------|
| FX-ADD3 | Single Additive Non Wetting Agence | 1Pack = 50g |
| FX-CAT8 | Single catalyst for FeTi, FeCr, FeV | 1Pack = 1000g |
| FX-OXY6 | Single oxidizer for ferroalloys and metals | 1Pack = 250g |
| FX-OXY7 | Single oxidizer for slags, ferroalloys, oxides | 1Pack = 250g |
| FX-SUL1 | Borate flux for sulfide ores | 1Pack = 1000g |
| FX-SUL2 | Borate flux for sulfide ores | 1Pack = 1000g |
| FX-SUL3 | Internal standard tungsten oxide | 1Pack = 100g |
| FX-SUL4 | Single oxidizer for sulfides | 1Pack = 250g |

Platinum ware for VULCAN

We supply platinum ware made from platinum/gold 95/5 for fusion machines and laboratory need.

We accept old platinum ware for recycling as credit against your next order.

We offer all platinum ware also in FKS.

This surface finishing increases the lifetime of your crucibles and moulds.

Please ask for a quote.



| Item No. | Description | OD mm | ID mm | Height mm | Bottom mm | Weight g |
|----------|-----------------|-------|-------|-----------|-----------|----------|
| FS-OT866 | Crucible Vulcan | 34 | 20 | 38 | 0,5 | 45 |
| FS-OT867 | Crucible Vulcan | 36 | 22,5 | 38 | 0,5 | 51 |
| FS-OA434 | Mould | 31 | 29 | 3,8 | 0,8 | 31 |
| FS-OA877 | Mould | 34 | 32 | 3,8 | 0,8 | 31 |
| FS-OA438 | Mould | 36 | 34 | 3,8 | 0,8 | 45 |
| FS-OA439 | Mould | 41 | 39 | 3,8 | 0,8 | 46 |

For your order in platinum FKS just add 'FKS' to the part no! Other sizes on request.

Tools

| Item No. | Description | Quantity |
|-----------------|---|----------|
| FS-OZ327 | Crucible tongs, shoes of platinum, length 230mm, ca. 5g Pt | 1 |
| VU-US1.9kit | Ultrasonic bath with heating, Vol. ca. 1,9l for cleaning | 1 |
| WZ-0004 | Suction tool for beads and pellets | 1 |
| VU-Tiegel_Al2O3 | Crucible made from Aluminiumoxide for determination of LOI (loss on ignition). Cheap and very robust alternative for platinum | 1 |



Applications

We offer ready to go calibration packages for x-ray fluorescence analysis. Please see our applicaton flyer for further information.



Sample Storage

It is important to keep reference materials, prepared as beads or pellets in a dust free and dry environment.

There is a wide range of boxes and containers for single or multiple samples and standards for XRF.



| Item No. | Description | Compartments | Qty/Set |
|---------------------|--|---------------------------|---------|
| BX-0001-18 | Box 210 x 120 x 35mm with lid | 18x max 32mm pellets/cups | 1 |
| BX-0001-24 | Box 330 x 220 x 53mm with lid | 24x max 52mm pellets/cups | 1 |
| BX-0002-5 | Drawer cabinet with 5 drawers, each with 42 partitions for D max 34mm, H 17mm (ideal for pellets D max 34mm) | 210x max 34mm pellets | 1 |
| BX-0003-5 | Drawer cabinet with 5 drawers, each with 25 partitions for D max 42mm, H 17mm (ideal for pellets D max 42mm) | 125x max 42mm pellets | 1 |
| BX-0004-39 | Box for single pellet H 15mm | max 32mm pellets | 1 |
| BX-0004-46 | Box for single pellet H 16mm | max 42mm pellets | 1 |
| BX-0004-46-6 | Box for single pellet H 6mm | max 46mm pellets | 1 |
| BX-0004-50 | Box for single pellet H 25mm | max 50mm pellets | 1 |
| BX-0006-P | Plastic tweezers for beads | | 1 |
| BX-0010 | Desiccator W350 x H334 x D410mm incl. dry pearls, tray for dry pearls and hygrometer to combine with storage case 1x BX-0002-5 or 1x BX-0003-5 or 3x BX-0001-24 | | 1 |
| BX-0011 | Desiccator W640 x H550 x D410mm incl. dry pearls, tray for dry pearls and hygrometer to combine with storage case 4x BX-0002-5 or 4x BX-0003-5 or 12x BX-0001-24 | | 1 |
| WZ-0004 | Handling tool for glass beads and pellets | | 1 |

Additional, individual drawers to add the cabinet are available in various colours.
Other dimensions on request.

For storing your beads and pellets we would recommend:

BX-0001-18 / BX-0001-24:

Boxes to store your individual samples.

BX-0004-39 / BX-0004-46 / BX-0004-50 / BX-0004-46-6:

Store 32mm (40mm) samples in these transparent boxes with sealed lid.

BX-0002-5, BX-0003-5:

Drawer cabinets suitable for direct storage of non-hygroscopic samples.

BX-0010, BX-0011:

Desiccators to store your sensible calibration and monitor samples.
Ideal combination with BX-0002-5, BX-0003-5 or BX-0001-24.

Tip: Use our tool WZ-0004 to handle your pellets and beads and avoid finger contact.





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