thermoscientific

FlashSmart

Organic Elemental Analyzers

Consumables and Spare Parts Catalog

31707002 Revision A October 2016

ThermoFisher SCIENTIFIC

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Revision A, Released October 2016

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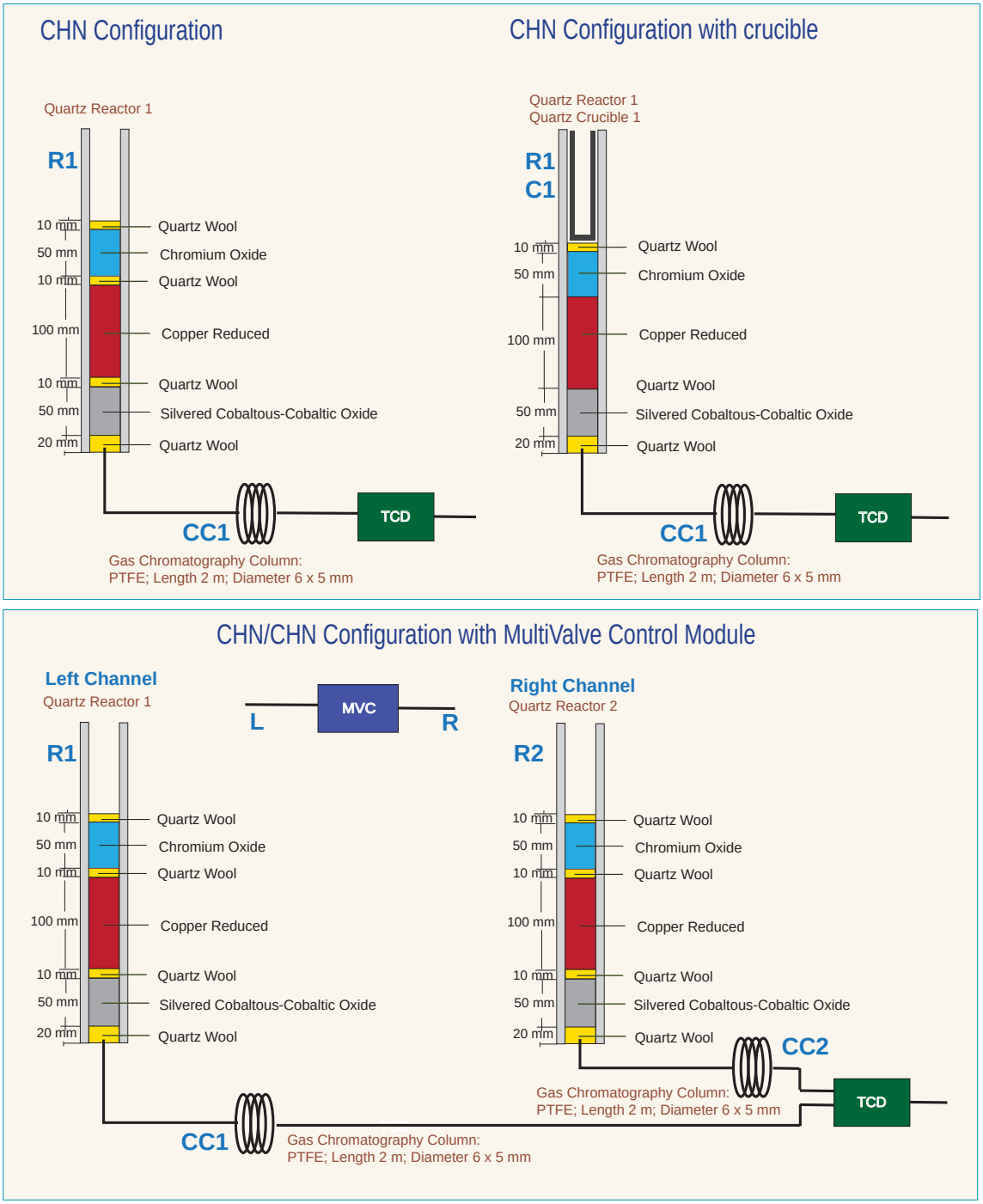
1

CHN Determination

Table 1. Consumables and Spare Parts for CHN Determination

Refer To:	Description	Qty	Part Number
--	Bottom O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 20640
--	Top O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 22910
❍	Quartz Wool	5 g	338 22200
❍	Chromium Oxide	25 g	338 22900
❍	High Quality Copper	50 g	338 35312
❍	Silvered Cobaltous-Cobaltic Oxide	25 g	338 24500
R1	Empty Quartz Reactor Tube 18 mm OD (Set of 2)	1	468 20070
C1	Quartz Crucible	1	252 04510
--	Prepacked Quartz Reactor CHN/NC - Argon Sealed	1	468 02009
CC1	Multiseparation Column (PTFE; 2 m; 6x5 mm)	1	260 08220
--	Tin Containers Megabox (Set of 1000)	1	240 06410
--	Tin Containers (Set of 100)	1	240 06400
--	Forceps	1	205 00500
--	Small Spatula for Container Filling	1	205 00600
--	Cyclohexanone STD	1 g	338 22400
--	Atropine STD	2 g	338 24400
--	Imidazole STD	1 g	338 35430
--	Acetanilide STD	2 g	338 36700
--	Urea STD	2 g	338 40001
--	Nicotinamide STD	2 g	338 40019

Size of the Filling Material



IMPORTANT If the sample has a high presence of inorganic material, we suggest to insert the **quartz crucible** into the oxidation/reduction reactor. In this case it is necessary to eliminate the **quartz wool** between **chromium oxide** and high quality **copper reduced**, and between high quality **copper reduced** and **silvered cobaltous/cobaltic oxide**.

2

CHN/O Determination

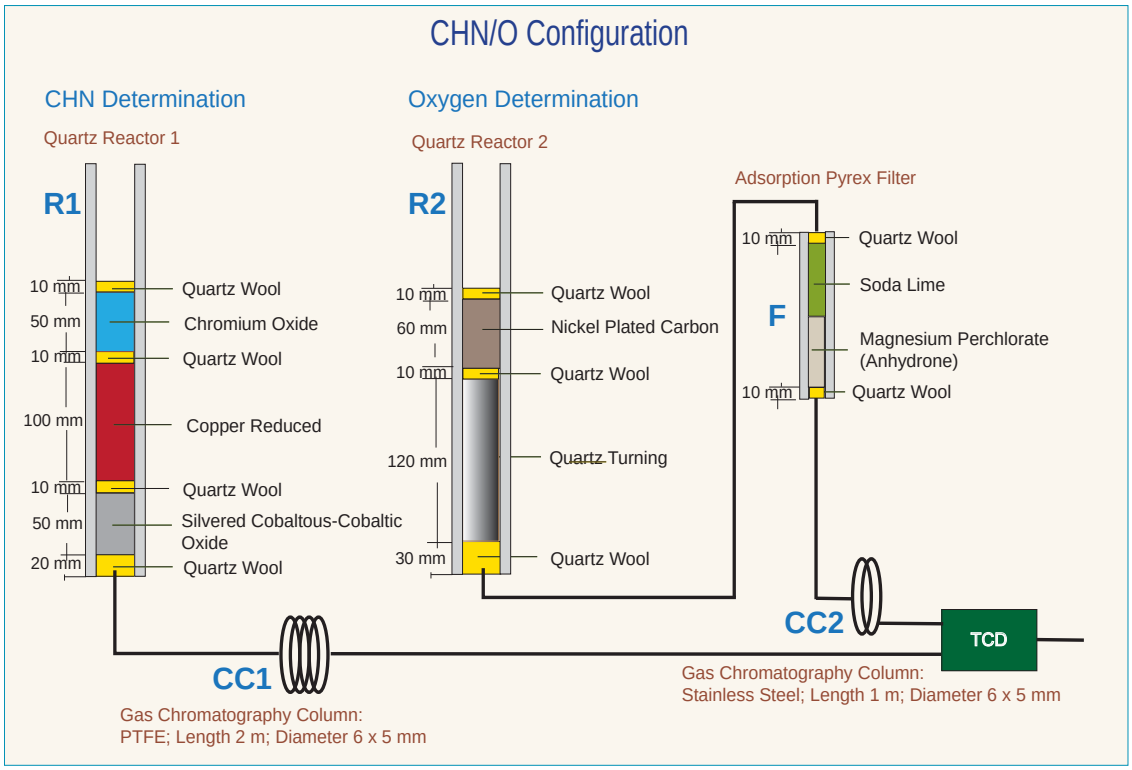
Table 2. Consumables and Spare Parts for CHN/O Determination (Sheet 1 of 2)

Refer To:	Description	Qty	Part Number
--	Bottom O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 20640
--	Top O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 22910
❍	Quartz Wool	5 g	338 22200
❍	Chromium Oxide	25 g	338 22900
❍	High Quality Copper	50 g	338 35312
❍	Silvered Cobaltous-Cobaltic Oxide	25 g	338 24500
❍	Nickel Plated Carbon	5 g	338 23800
❍	Quartz Turning	50 g	338 22300
❍	Soda Lime	100 g	338 35235
❍	Magnesium Perchlorate (Anhydrone)	100 g	338 21900
--	Nickel Wool	2 g	338 25000
R1/R2	Empty Quartz Reactor Tube 18 mm OD (Set of 2)	1	468 20070
C1/C2	Quartz Crucible	1	252 04510
--	Prepacked Quartz Reactor CHN/NC - Argon Sealed	1	468 02009
F	Empty Adsorption Filter Tube (Small Size) without Fast Connectors	1	281 13104
CC1	Multiseparation Column (PTFE; 2 m; 6x5 mm)	1	260 08220
CC2	Oxygen Separation Column (SS; 1 m; 6x5 mm)	1	260 07900
--	Tin Containers Megabox (Set of 1000)	1	240 06410
--	Tin Containers (Set of 100)	1	240 06400
--	Silver Containers Megabox for Oxygen Determination (Set of 1000)	1	240 05410
--	Silver Containers for Oxygen Determination (Set of 100)	1	240 05400
--	Forceps	1	205 00500
--	Spatula	1	205 00600

Table 2. Consumables and Spare Parts for CHN/O Determination (Sheet 2 of 2)

--	Cyclohexanone STD	1 g	338 22400
--	Atropine STD	2 g	338 24400
--	Benzoic Acid STD	2 g	338 22500
--	Imidazole STD	1 g	338 35430
--	Acetanilide STD	2 g	338 36700
--	Urea STD	2 g	338 40001
--	Nicotinamide STD	2 g	338 40019

Size of the Filling Material (1)

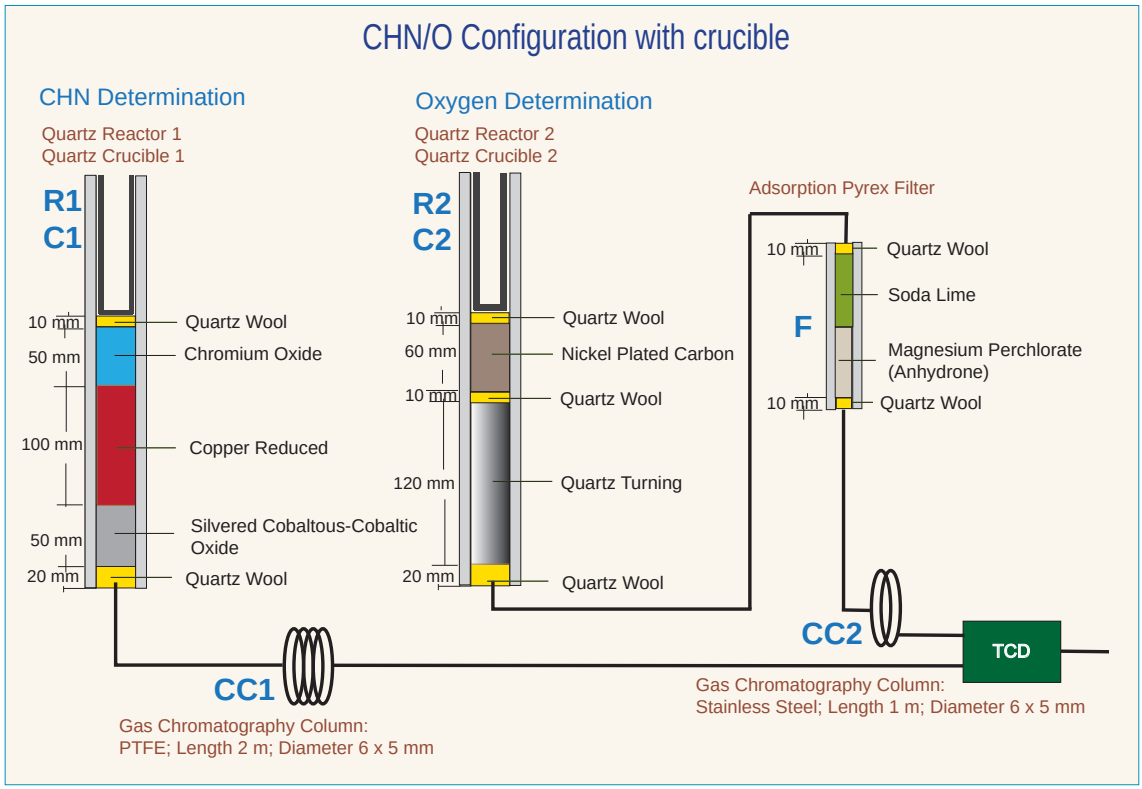


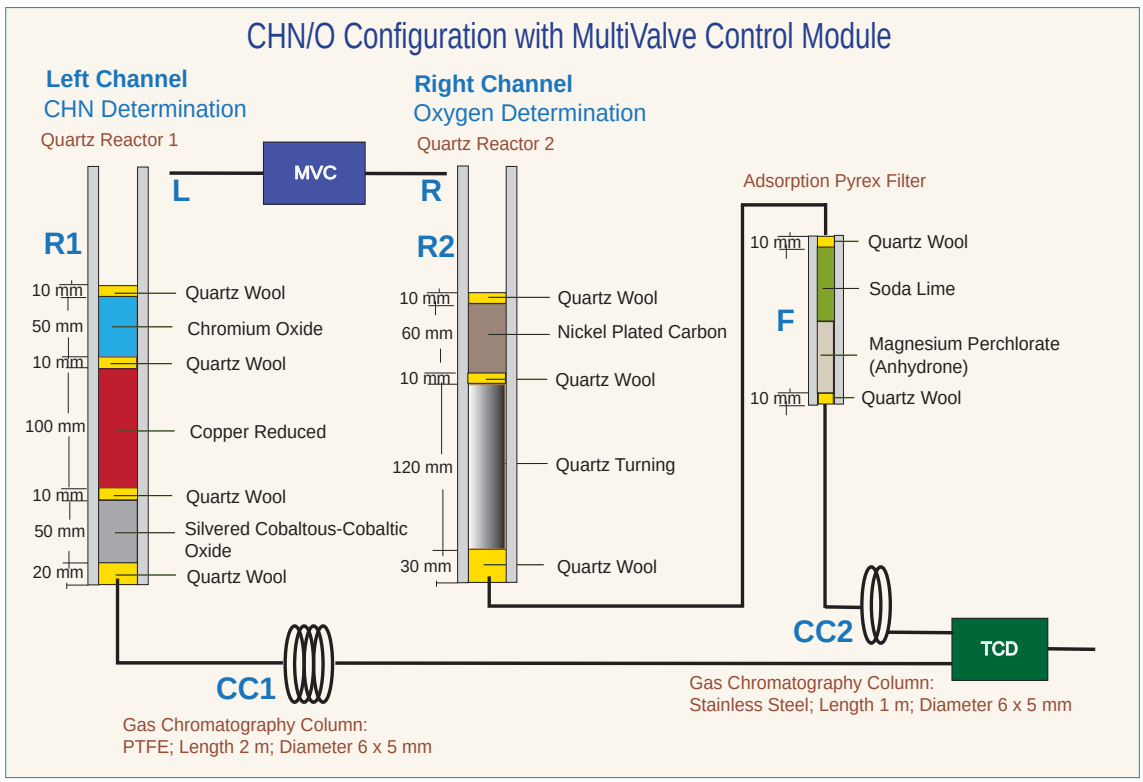
Note In some cases, is suggested to use **Nickel Wool**, in the top layer up the **Nickel Plated Carbon**, instead of **Quartz Wool**.

IMPORTANT CHN Determination: If the sample has a high presence of inorganic material, we suggest to insert the **quartz crucible** into the oxidation/reduction reactor. In this case it is necessary to eliminate the **quartz wool** between **chromium oxide** and high quality **copper reduced** and between the high quality **copper reduced** and **cobaltous/cobaltic oxide**.

IMPORTANT Oxygen Determination: If the sample has a high presence of inorganic material, we suggest to insert the **quartz crucible** into the reactor of pyrolysis. In this case it is necessary to reduce from **30 mm** to **20 mm** the **quartz wool** in the lower section of the reactor.

Size of the Filling Material (2)





Note About the use of the crucible see the IMPORTANT notes on page 11.

IMPORTANT If the sample has a high presence of inorganic material, we suggest to insert the **quartz crucible** into the oxidation/reduction reactor. In this case it is necessary to eliminate the **quartz wool** between **chromium oxide** and high quality **copper reduced**, and between high quality **copper reduced** and **silvered cobaltous/cobaltic oxide**.

3

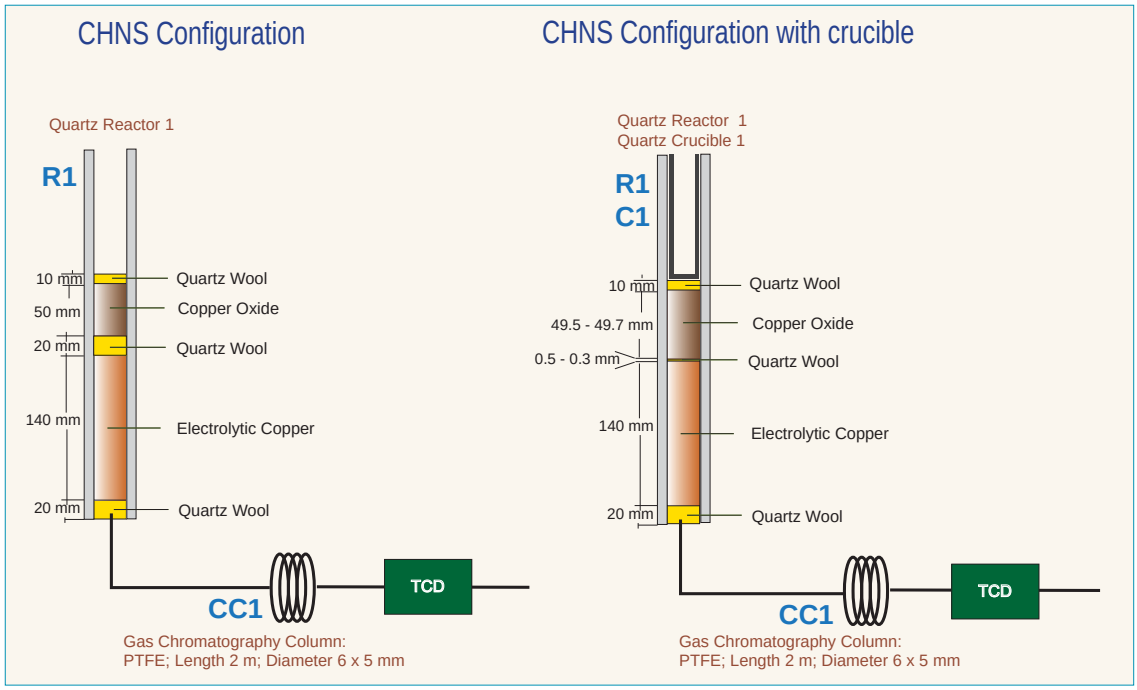
CHNS Determination

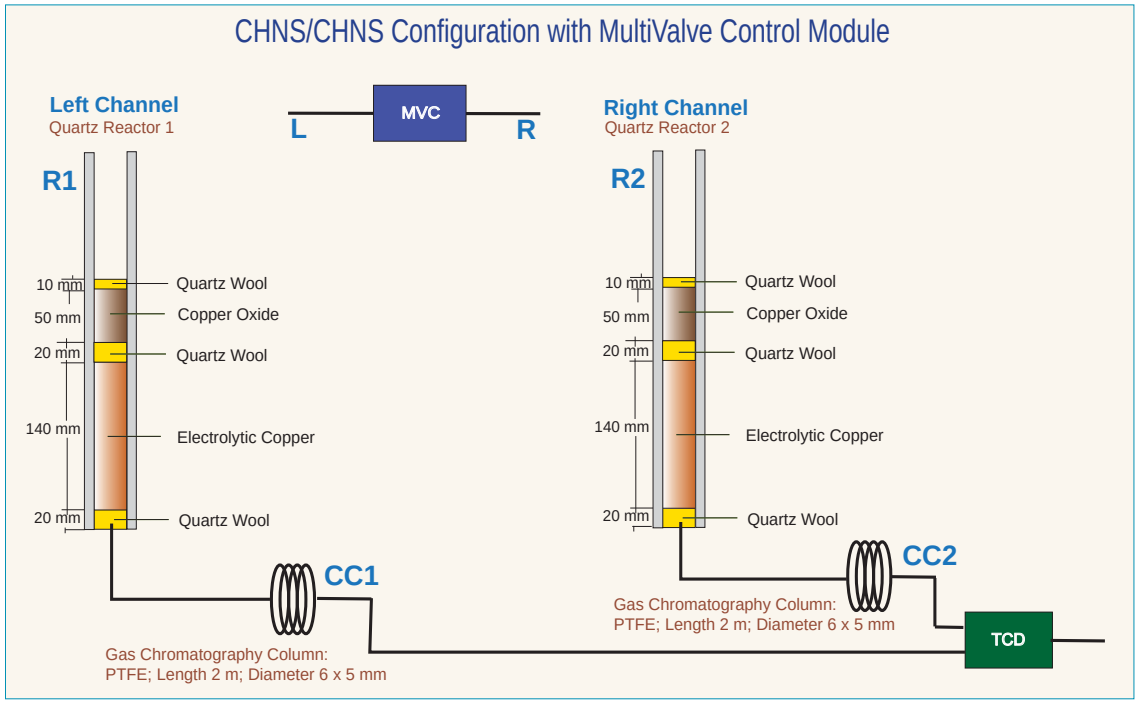
Table 3. Consumables and Spare Parts for CHNS Determination

Refer To:	Description	Qty	Part Number
--	Bottom O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 20640
--	Top O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 22910
❍	Quartz Wool	5 g	338 22200
❍	Copper Oxide	25 g	338 21730
❍	Electrolytic Copper	80 g	338 35314
--	Vanadium Pentoxide	1 g	338 37510
R1	Empty Quartz Reactor Tube 18 mm OD (Set of 2)	1	468 20070
R1	Prepacked Quartz Reactor for CHNS/NCS/S Determinations	1	468 02015
C1	Quartz Crucible	1	252 04510
CC1	Packed Column CHNS/NCS (PTFE; 2 m; 6x5 mm)	1	260 08215
--	Tin Containers Megabox (Set of 1000)	1	240 06410
--	Tin Containers (Set of 100)	1	240 06400
--	Forceps	1	205 00500
--	Small Spatula for Container Filling	1	205 00600
--	BBOT STD	2 g	338 35210
--	Sulphanilamide STD	2 g	338 25100
--	L-Cystine STD	2 g	338 40018

Note **Vanadium Pentoxide** (V_2O_5) is an Oxygen donor: according to the sample nature, it is suggested to insert in the tin container with the sample, for a proper oxidation of material and consequently a quantitative Sulfur determination.

Size of the Filling Material





IMPORTANT If the sample has a high presence of inorganic material, we suggest to insert the **quartz crucible** into the oxidation/reduction reactor. In this case it is necessary to reduce the **quartz wool** between **copper oxide** and **electrolytic copper** up to obtain a thin layer and to reduce the **copper oxide** proportionally.

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CHNS/O Determination

Table 4. Consumables and Spare Parts for CHNS/O Determination (Sheet 1 of 2)

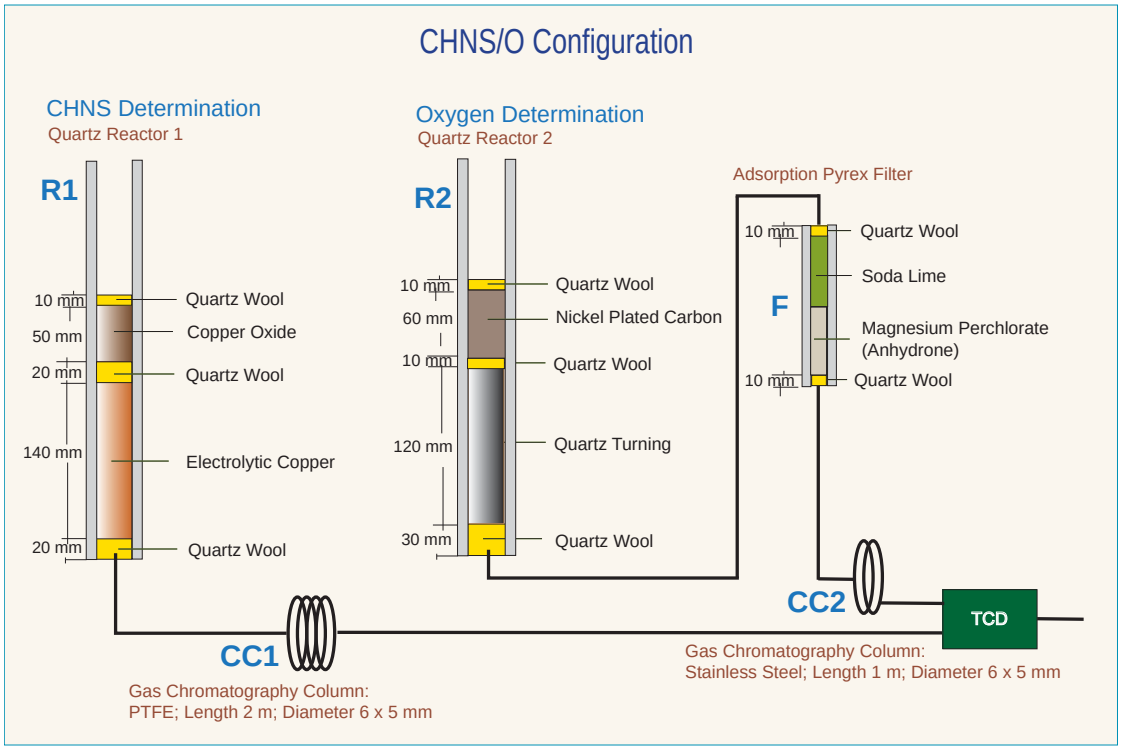
Refer To:	Description	Qty	Part Number
--	Bottom O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 20640
--	Top O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 22910
❍	Quartz Wool	5 g	338 22200
❍	Copper Oxide	25 g	338 21730
❍	Electrolytic Copper	80 g	338 35314
❍	Nickel Plated Carbon	5 g	338 23800
❍	Quartz Turnings	50 g	338 22300
❍	Soda Lime	100 g	338 35235
❍	Magnesium Perchlorate (Anhydrone)	100 g	338 21900
--	Nickel Wool	2 g	338 25000
--	Vanadium Pentoxide	1 g	338 37510
R1/R2	Empty Quartz Reactor Tube 18 mm OD (Set of 2)	1	468 20070
R1	Prepacked Quartz Reactor for CHNS/NCS/S Determinations	1	468 02015
C1/C2	Quartz Crucible	1	252 04510
F	Empty Adsorption Filter Tube (Small Size) without Fast Connectors	1	281 13104
CC1	CHNS/NCS Separation Column (PTFE; 2 m; 6x5 mm)	1	260 08215
CC2	Oxygen Separation Column (SS; 1m; 6x5 mm)	1	260 07900
--	Tin Containers Megabox (Set of 1000)	1	240 06410
--	Tin Containers (Set of 100)	1	240 06400
--	Silver Containers Megabox for Oxygen Determination (Set of 1000)	1	240 05410
--	Silver Containers for Oxygen Determination (Set of 100)	1	240 05400
--	Forceps	1	205 00500
--	Small Spatula for Container Filling	1	205 00600
--	Atropine STD	2 g	338 24400
--	Benzoic Acid STD	2 g	338 22500
--	Sulphanilamide STD	2 g	338 25100

Table 4. Consumables and Spare Parts for CHNS/O Determination (Sheet 2 of 2)

--	BBOT STD	2 g	338 35210
--	Acetanilide STD	2 g	338 36700
--	Urea STD	2 g	338 40001
--	L-Cystine STD	2 g	338 40018
--	Nicotinamide STD	2 g	338 40019

Note **Vanadium Pentoxide** (V_2O_5) is an Oxygen donor: according to the sample nature, it is suggested to insert in the tin container with the sample, for a proper oxidation of material and consequently a quantitative Sulfur determination.

Size of the Filling Material (1)

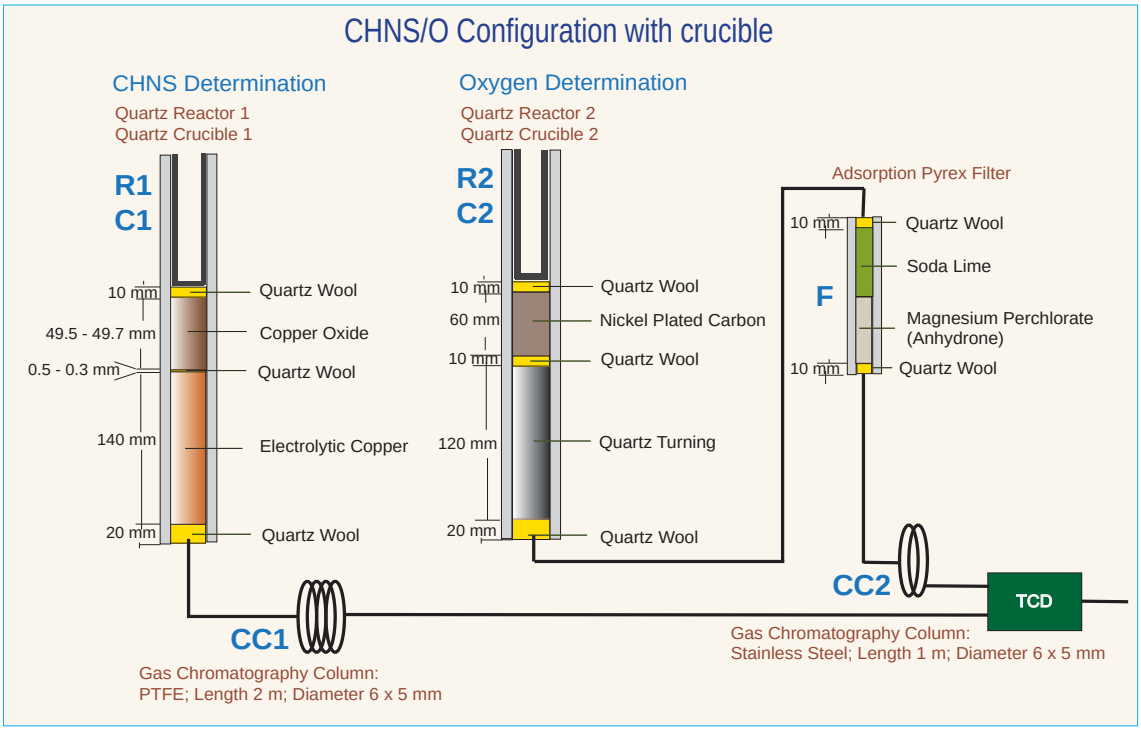


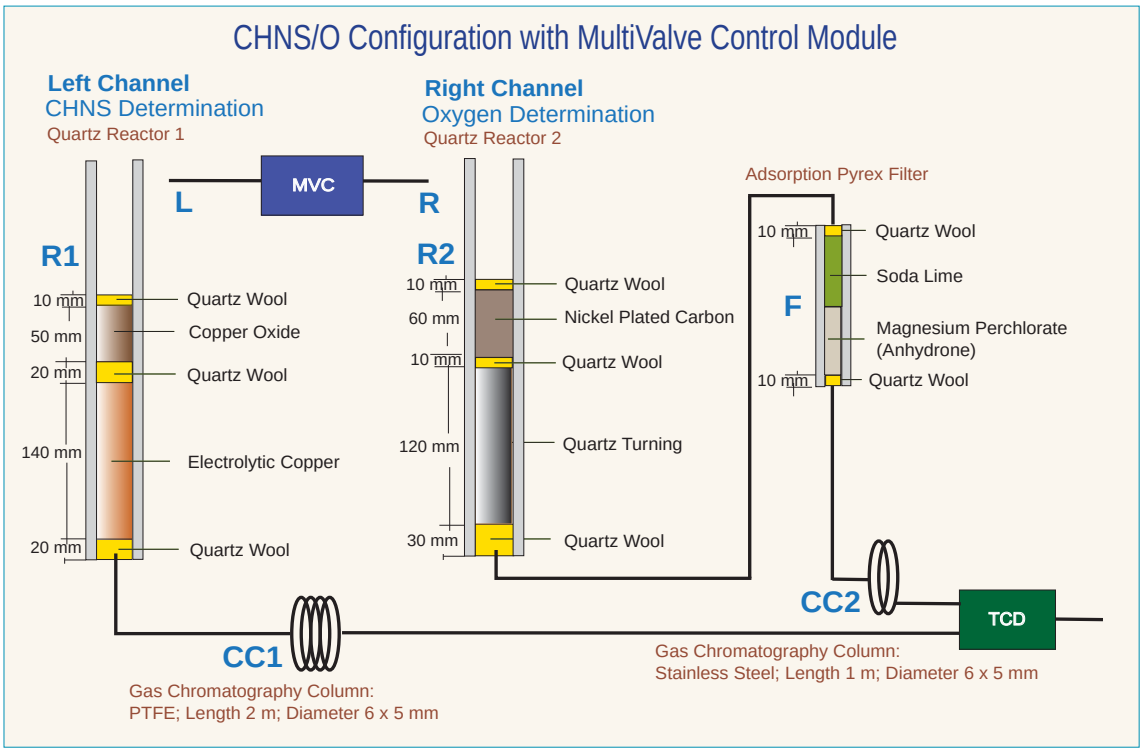
Note In some cases, is suggested to use **Nickel Wool**, in the top layer up the **Nickel Plated Carbon**, instead of Quartz Wool.

IMPORTANT CHNS Determination: If the sample has a high presence of inorganic material, we suggest to insert the **quartz crucible** into the oxidation/reduction reactor. In this case it is necessary to reduce the **quartz wool** between **copper oxide** and **electrolytic copper** up to obtain a thin layer and to reduce the **copper oxide** proportionally.

IMPORTANT Oxygen Determination: If the sample has a high presence of inorganic material, we suggest to insert the **quartz crucible** into the reactor of pyrolysis. In this case it is necessary to reduce from **30 mm** to **20 mm** the **quartz wool** in the lower section of the reactor.

Size of the Filling Material (2)





Note About the use of the crucible see the **IMPORTANT** notes on page 17.

IMPORTANT If the sample has a high presence of inorganic material, we suggest to insert the **quartz crucible** into the oxidation/reduction reactor. In this case it is necessary to reduce the **quartz wool** between **copper oxide** and **electrolytic copper** up to obtain a thin layer and to reduce the **copper oxide** proportionally.

5

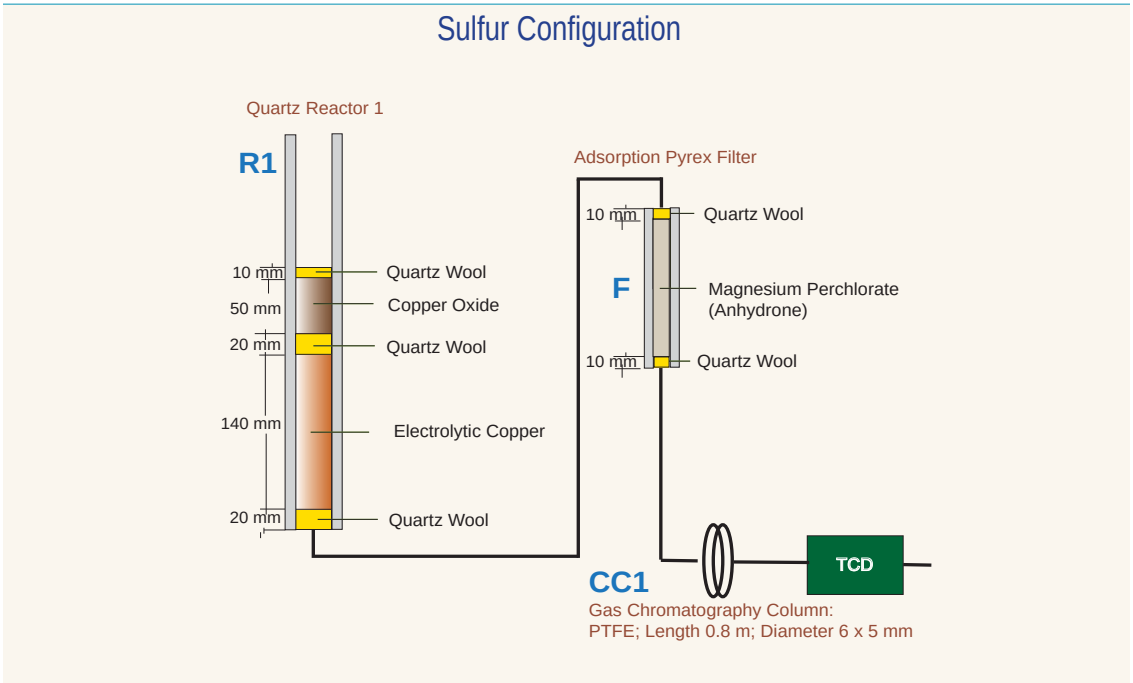
S Determination

Table 5. Consumables and Spare Parts for S Determination

Refer To:	Description	Qty	Part Number
--	Bottom O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 20640
--	Top O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 22910
❍	Quartz Wool	5 g	338 22200
❍	Copper Oxide	25 g	338 21730
❍	Electrolytic Copper	80 g	338 35314
❍	Magnesium Perchlorate (Anhydrone)	100 g	338 21900
--	Vanadium Pentoxide	1 g	338 37510
R1	Empty Quartz Reactor Tube 18 mm OD (Set of 2)	1	468 20070
R1	Prepacked Quartz Reactor for CHNS/NCS/S Determinations	1	468 02015
C1	Quartz Crucible	1	252 04510
F	Empty Adsorption Filter Tube (Small Size) without Fast Connectors	1	281 13104
CC1	Sulfur Separation Column (PTFE; 0.8 m; 6x4 mm)	1	260 07800
--	Tin Containers Megabox (Set of 1000)	1	240 06410
--	Tin Containers (Set of 100)	1	240 06400
--	Forceps	1	205 00500
--	Small Spatula for Container Filling	1	205 00600
--	BBOT STD	2 g	338 35210
--	Sulphanilamide STD	2 g	338 25100
--	L-Cystine STD	2 g	338 40018

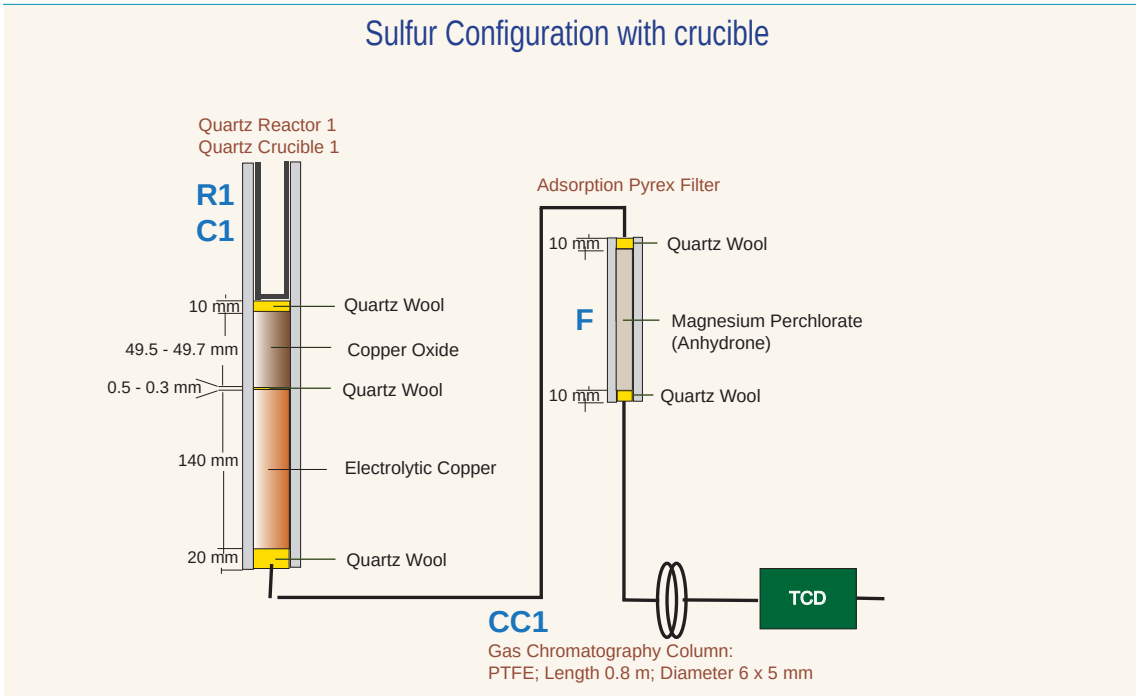
Note **Vanadium Pentoxide** (V_2O_5) is an Oxygen donor: according to the sample nature, it is suggested to insert in the tin container with the sample, for a proper oxidation of material and consequently a quantitative Sulfur determination.

Size of the Filling Material (1)



IMPORTANT If the sample has a high presence of inorganic material, we suggest to insert the **quartz crucible** into the oxidation/reduction reactor. In this case it is necessary to reduce the **quartz wool** between **copper oxide** and **electrolytic copper** up to obtain a thin layer and to reduce the **copper oxide** proportionally.

Size of the Filling Material (2)



6

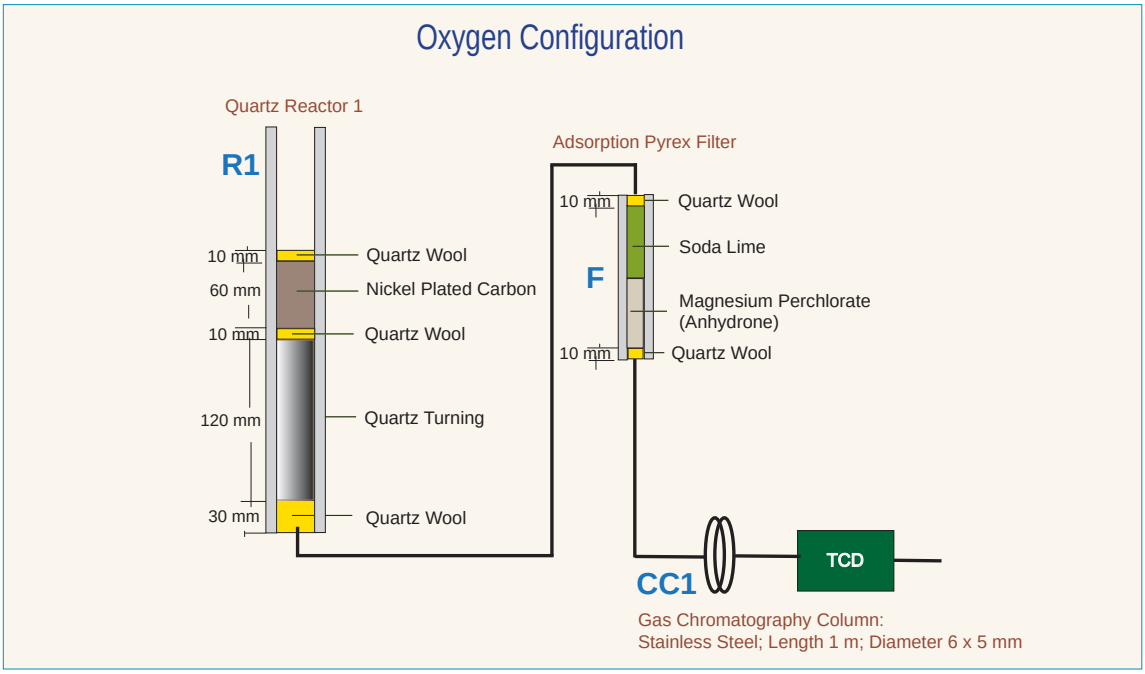
O Determination

Table 6. Consumables and Spare Parts for O Determination

Refer To:	Description	Qty	Part Number
--	Bottom O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 20640
--	Top O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 22910
❍	Quartz Wool	5 g	338 22200
❍	Nickel Plated Carbon	5 g	338 23800
❍	Quartz Turnings	50 g	338 22300
❍	Soda Lime	100 g	338 35235
❍	Magnesium Perchlorate (Anhydrone)	100 g	338 21900
--	Nickel Wool	2 g	338 25000
R1	Empty Quartz Reactor Tube 18 mm OD (Set of 2)	1	468 20070
C1	Quartz Crucible	1	252 04510
F	Empty Adsorption Filter Tube (Small Size) without Fast Connectors	1	281 13104
CC1	Oxygen Separation Column (SS; 1m; 6x5mm)	1	260 07900
--	Silver Containers Megabox for Oxygen Determination (Set of 1000)	1	240 05410
--	Silver Containers for Oxygen Determination (Set of 100)	1	240 05400
--	Forceps	1	205 00500
--	Small Spatula for Container Filling	1	205 00600
--	Cyclohexanone STD	1 g	338 22400
--	Benzoic Acid STD	2 g	338 22500
--	Sulphanilamide STD	2 g	338 25100
--	BBOT STD	2 g	338 35210
--	Acetanilide STD	2 g	338 36700
--	Urea STD	2 g	338 40001
--	L-Cystine STD	2 g	338 40018
--	Nicotinamide STD	2 g	338 40019

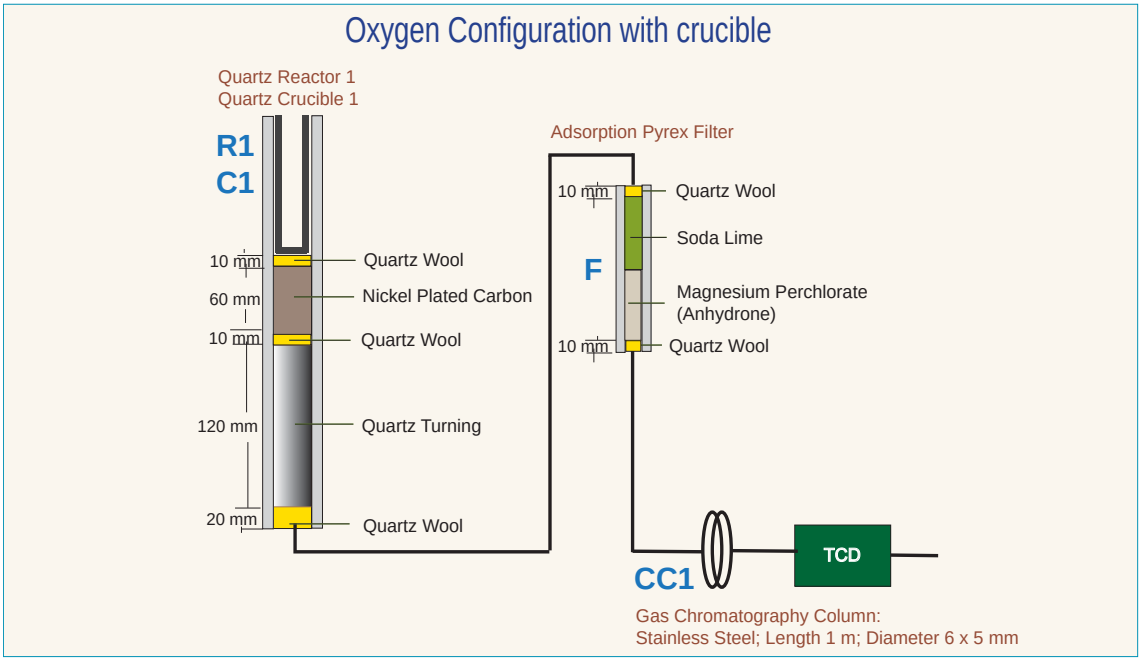
Note In some cases, is suggested to use **Nickel Wool**, in the top layer up the **Nickel Plated Carbon**, instead of Quartz Wool.

Size of the Filling Material (1)



IMPORTANT If the sample has a high presence of inorganic material, we suggest to insert the **quartz crucible** into the reactor of pyrolysis. In this case it is necessary to reduce from **30 mm** to **20 mm** the **quartz wool** in the lower section of the reactor.

Size of the Filling Material (1)



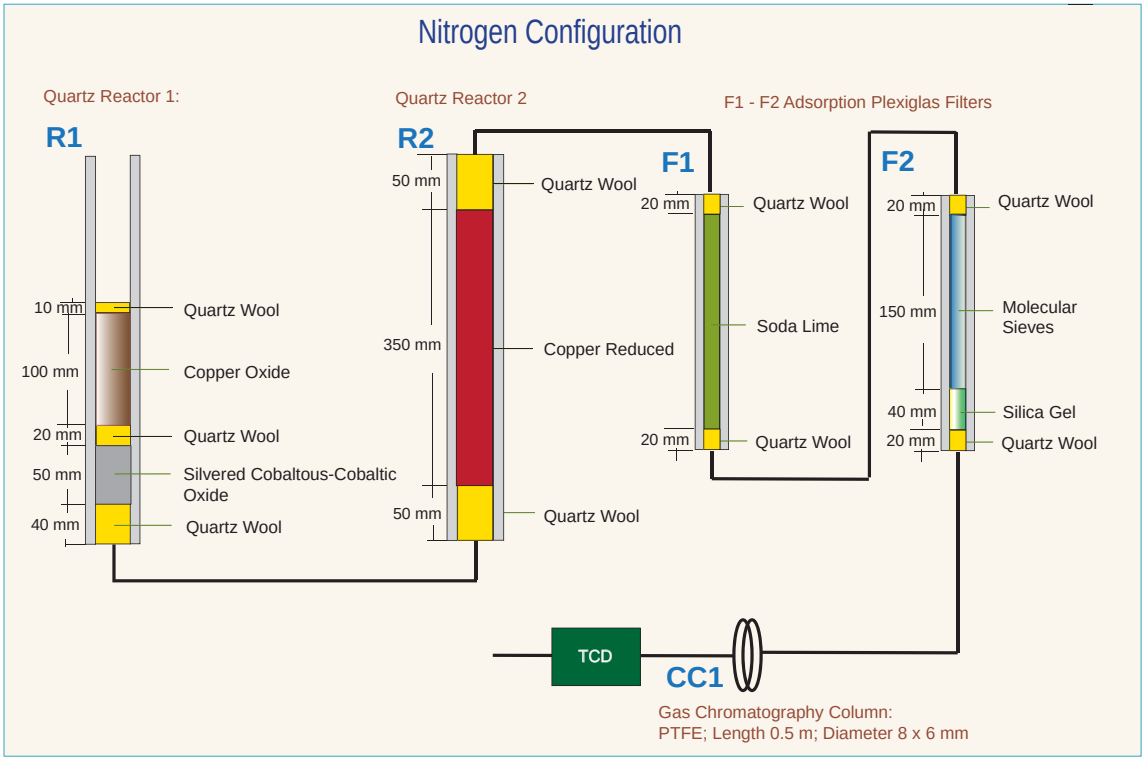
7

N Determination

Table 7. Consumables and Spare Parts for N Determination

Refer To:	Description	Qty	Part Number
--	Bottom O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 20640
--	Top O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 22910
❍	Quartz Wool	5 g	338 22200
❍	Copper Oxide	25 g	338 21730
❍	Silvered Cobaltous-Cobaltic Oxide	25 g	338 24500
❍	High Quality Copper	50 g	338 35312
❍	Soda Lime	100 g	338 35235
❍	Molecular Sieve 3 Å	100 g	338 01801
❍	Silica Gel plus indicator	100 g	338 40035
--	Chromosorb® WAW 30/60 mesh	25 g	338 37530
R1/R2	Empty Quartz Reactor Tube 18 mm OD (Set of 2)	1	468 20070
F1/F2	Empty Adsorption Filter Tube (Large Size) without Fast Connectors	2	281 13064
CC1	Nitrogen Separation Column (PTFE; 0.5m; 8x6 mm)	1	260 07820
--	Tin Containers Megabox (Set of 1000)	1	240 06410
--	Tin Containers (Set of 100)	1	240 06400
--	Forceps	1	205 00500
--	Small Spatula for Container Filling	1	205 00600
--	Nicotinamide STD	2 g	338 40019
--	Aspartic Acid STD	2 g	338 40022
--	Atropine STD	2 g	338 24400

Size of the Filling Material



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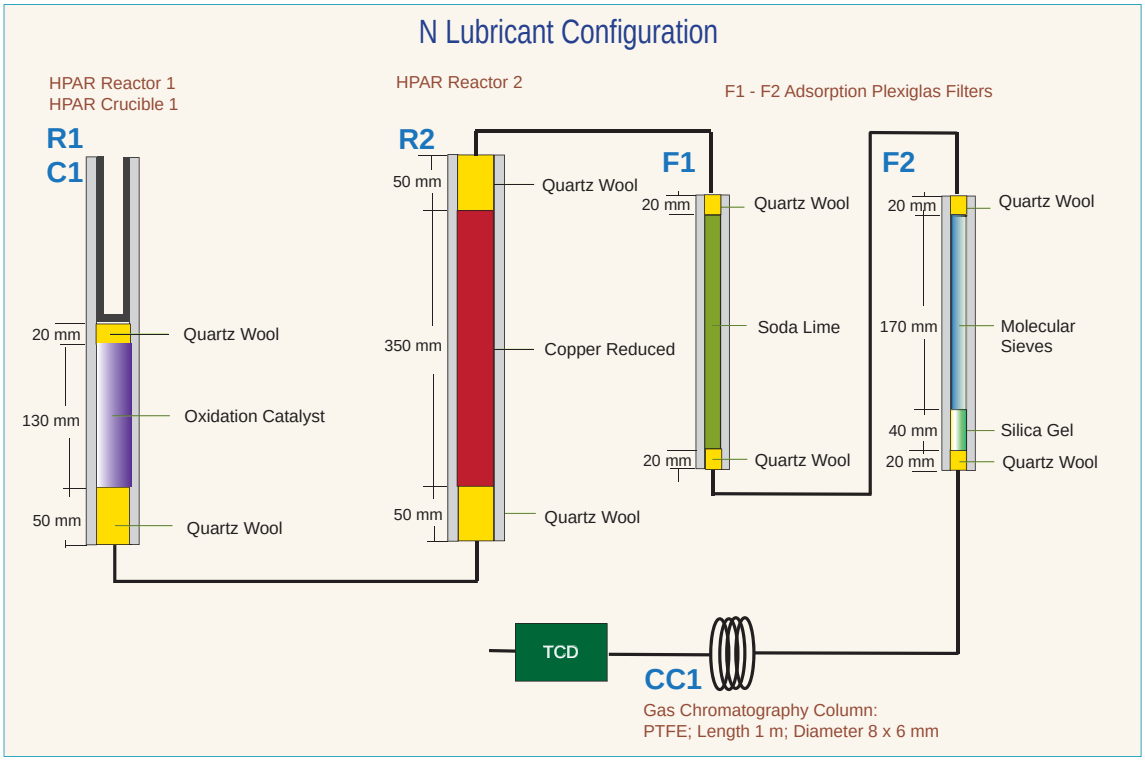
N Lubricant Determination

Table 8. Consumables and Spare Parts for N Lubricant Determination

Refer To:	Description	Qty	Part Number
--	Bottom O-Ring for 25 mm HPAR (Set of 5)	1	290 20649
--	Top O-Ring for 25 mm HPAR (Set of 5)	1	290 20682
❍	Quartz Wool	5 g	338 22200
❍	Oxidation Catalyst	40 g	338 40000
❍	High Quality Copper Reduced	50 g	338 35312
❍	Soda Lime	100 g	338 35235
❍	Silica Gel plus indicator	100 g	338 40035
❍	Molecular Sieve 3 Å	100 g	338 01801
R1	Prepacked HPAR Reactor; 25 mm OD	1	468 02008
C1	HPAR Crucible	1	252 05011
R1/R2	Empty HPAR Reactor; 25 mm OD	1	468 20075
F1/F2	Empty Adsorption Filter Tube (Large Size) without Fast Connectors	2	281 13064
CC1	Nitrogen Separation (N-Brew) Column (PTFE; 1 m; 8x6 mm)	1	260 70004
--	Tin Containers Megabox (Set of 1000)	1	240 06410
--	Large “Soft” Tin Containers (Set of 100)	1	252 08000
--	Tin Disk 30 mm diameter (Set of 100)	1	252 08015
--	Forceps	1	205 00500
--	Large Spatula for Container Filling	1	205 00600
--	Atropine	2 g	338 24400
--	Lubricant Reference Material	2 g	338 35240

Size of the Filling Material



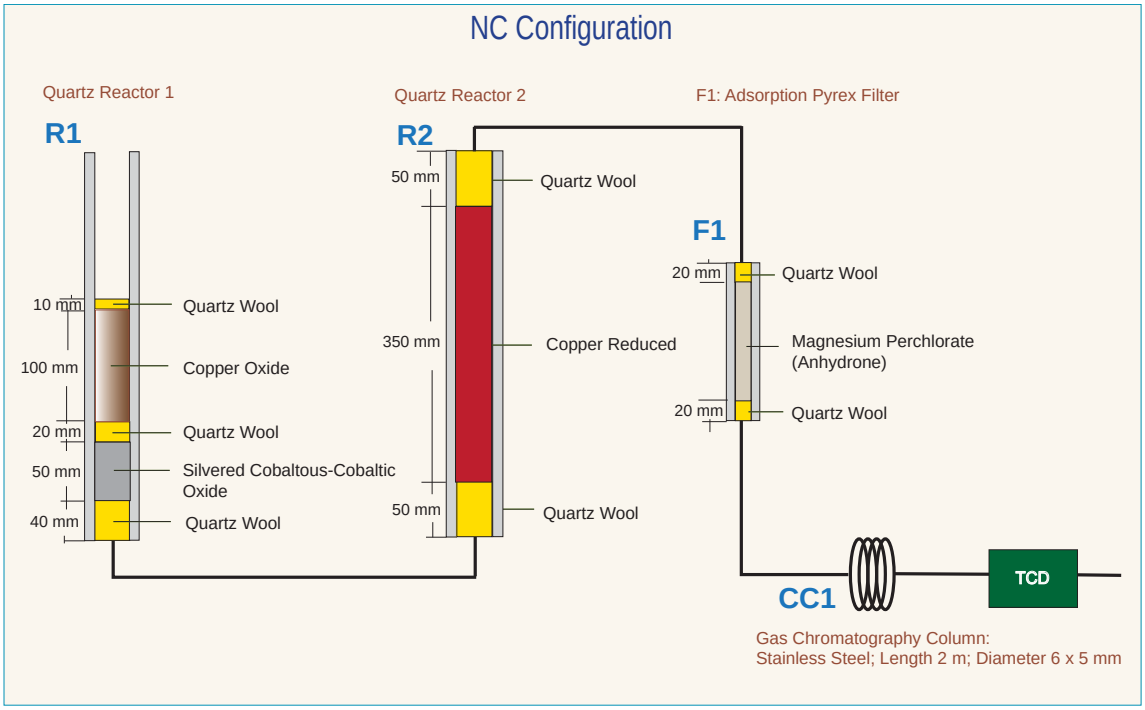
9

NC Determination

Table 9. Consumables and Spare Parts for NC Determination

Refer To:	Description	Qty	Part Number
--	Bottom O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 20640
--	Top O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 22910
❍	Quartz Wool	5 g	338 22200
❍	Copper Oxide	25 g	338 21730
❍	Silvered Cobaltous-Cobaltic Oxide	25 g	338 24500
❍	High Quality Copper Reduced	50 g	338 35312
❍	Magnesium Perchlorate (Anhydrone)	100 g	338 21900
R1/R2	Empty Quartz Reactor Tube 18 mm OD (Set of 2)	1	468 20070
F1	Empty Adsorption Filter Tube (Small Size) without Fast Connectors	1	281 13104
CC1	Multiseparation Column (SS; 2m; 6x5 mm)	1	260 07920
--	Tin Containers Megabox (Set of 1000)	1	240 06410
--	Tin Containers (Set of 100)	1	240 06400
--	Forceps	1	205 00500
--	Small Spatula for Container Filling	1	205 00600
--	Nicotinamide STD	2 g	338 40019
--	Aspartic Acid STD	2 g	338 40022
	Atropine STD	2 g	338 24400

Size of the Filling Material



10

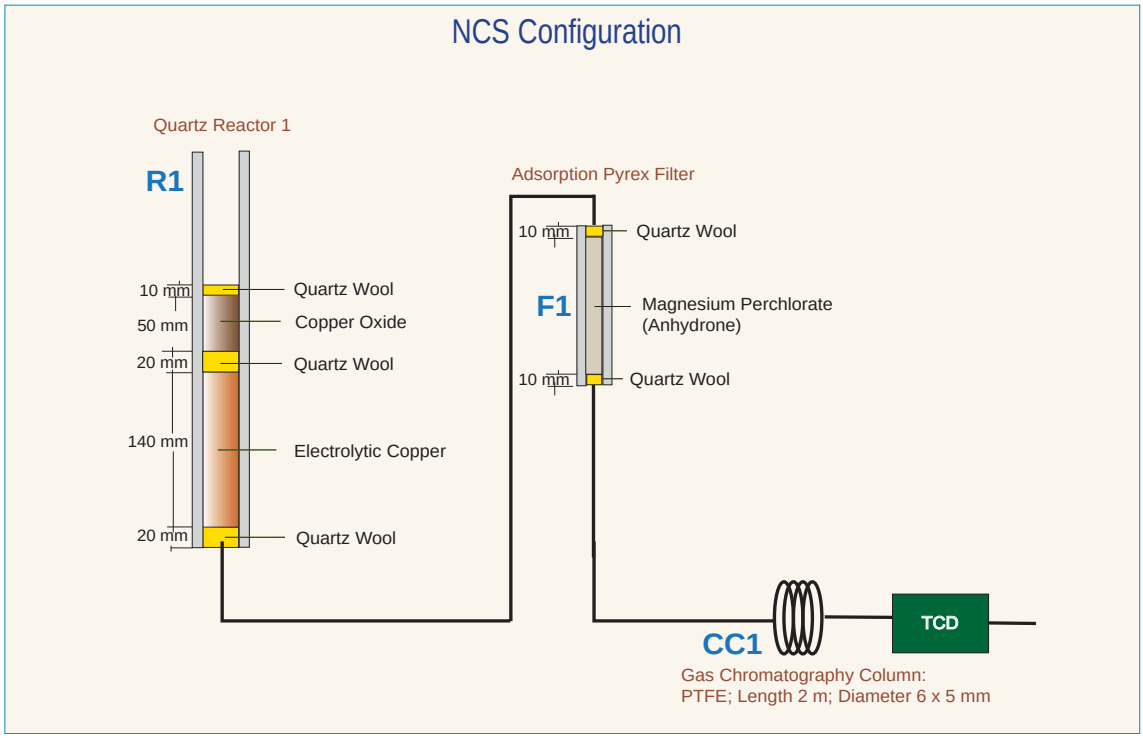
NCS Determination

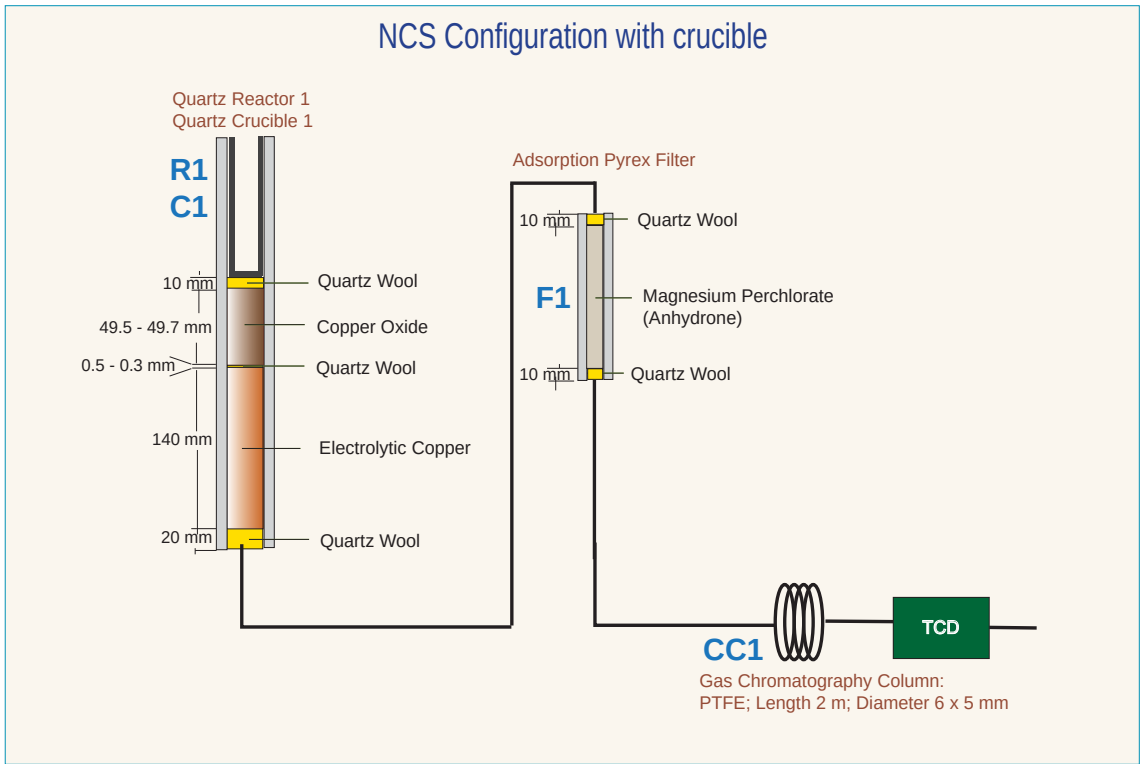
Table 10. Consumables and Spare Parts for NCS Determination

Refer To:	Description	Qty	Part Number
--	Bottom O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 20640
--	Top O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 22910
❍	Quartz Wool	5 g	338 22200
❍	Copper Oxide	25 g	338 21730
❍	Electrolytic Copper	80 g	338 35314
❍	Magnesium Perchlorate (Anhydrone)	100 g	338 21900
--	Vanadium Pentoxide	1g	338 37510
R1	Empty Quartz Reactor Tube 18 mm OD (Set of 2)	1	468 20070
--	Prepacked Quartz Reactor for CHNS/NCS/S Determinations	1	468 02015
C1	Quartz Crucible	1	252 04510
F1	Empty Adsorption Filter Tube (Small Size) without Fast Connectors	1	281 13104
CC1	CHNS/NCS Separation Column (PTFE 2 m; 6x5 mm)	1	260 08215
--	Tin Containers Megabox (Set of 1000)	1	240 06410
--	Tin Containers (Set of 100)	1	240 06400
--	Forceps	1	205 00500
--	Small Spatula for Container Filling	1	205 00600
--	BBOT STD	2 g	338 35210
--	Sulphanilamide STD	2 g	338 25100
--	L-Cystine STD	2 g	338 40018

Note **Vanadium Pentoxide** (V_2O_5) is an Oxygen donor: according to the sample nature, it is suggested to insert in the tin container with the sample, for a proper oxidation of material and consequently a quantitative Sulfur determination.

Size of the Filling Material





IMPORTANT If the sample has a high presence of inorganic material, we suggest to insert the **quartz crucible** into the oxidation/reduction reactor. In this case it is necessary to reduce the **quartz wool** between **copper oxide** and **electrolytic copper** up to obtain a thin layer and to reduce the **copper oxide** proportionally.

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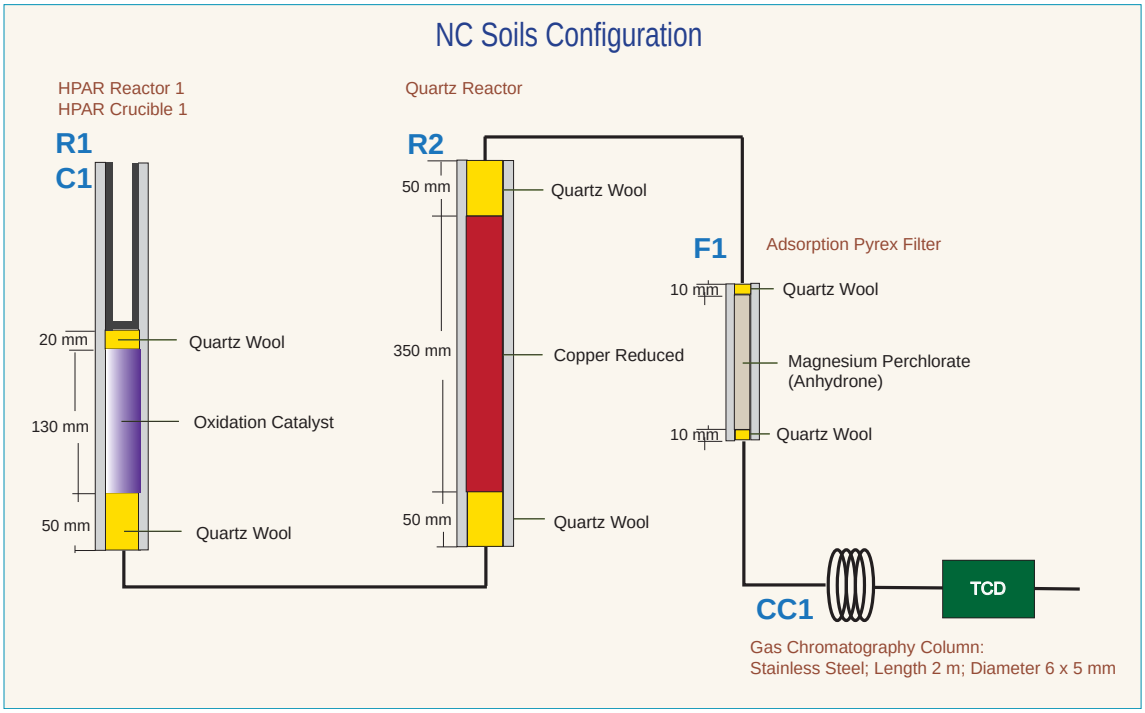
NC Soils Determinations

Table 11. Consumables and Spare Parts for NC Soils Determination

Refer To:	Description	Qty	Part Number
--	Bottom O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 20640
--	Top O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 22910
--	Bottom O-Ring for 25 mm OD HPAR (Set of 5)	1	290 20649
--	Top O-Ring for 25 mm OD HPAR (Set of 5)	1	290 20682
❍	Quartz Wool	5 g	338 22200
❍	Oxidation Catalyst	40 g	338 40000
❍	High Quality Copper	50 g	338 35312
❍	Magnesium Perchlorate (Anhydrone)	100 g	338 21900
R1	Prepacked HPAR Reactor	1	468 02008
--	Empty HPAR 25 mm OD	1	468 20075
C1	HPAR Crucible	1	252 05011
R2	Empty Quartz Reactor 18 mm OD (Set of 2)	1	468 20070
F1	Empty Adsorption Filter Tube (Small Size) without Fast Connectors	1	281 13104
CC1	Multiseparation Column (SS; 2m; 6x5 mm)	1	260 07920
--	Large “Soft” Tin Containers (Set of 100)	1	252 08000
--	Tin Disk 30 mm diameter (Set of 100)	1	252 08015
--	Tin Disk 35 mm diameter (Set of 100)	1	252 08018
--	Forceps	1	205 00500
--	Large Spatula for Container Filling	1	205 00620
--	Aspartic Acid STD	2 g	338 40022
--	Soil NC Reference Material	5 g	338 40025

Size of the Filling Material



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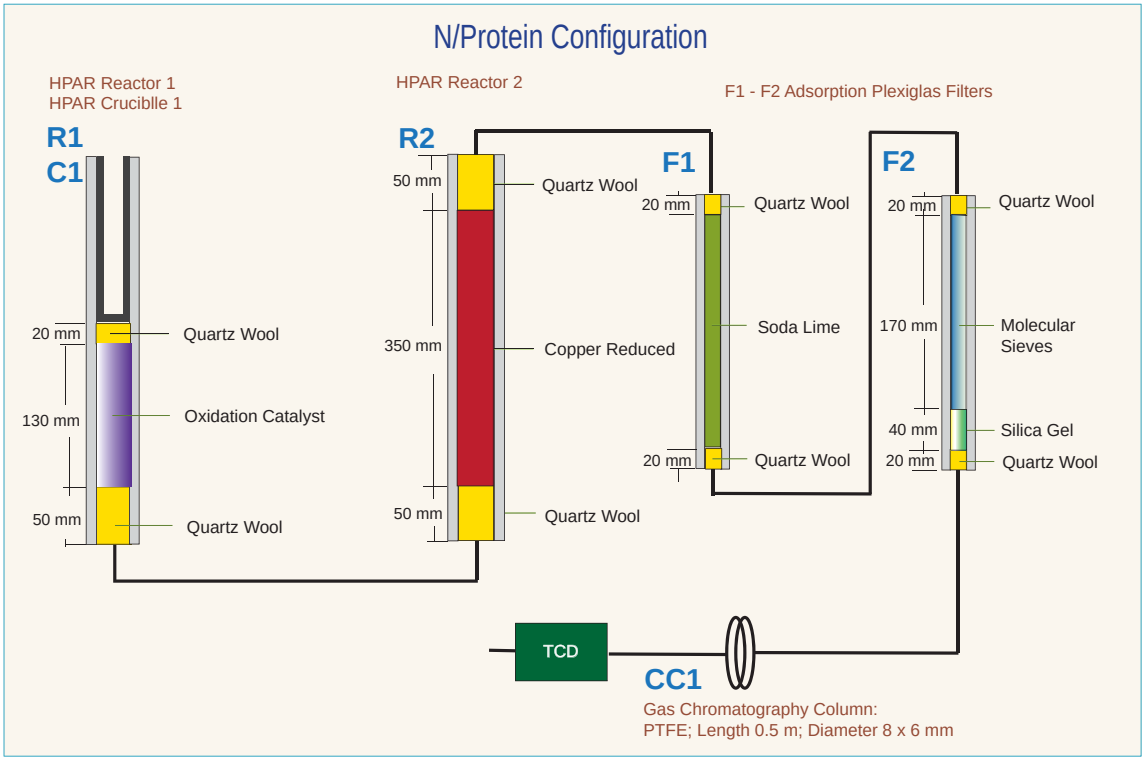
N/Protein, N/Brew Determinations

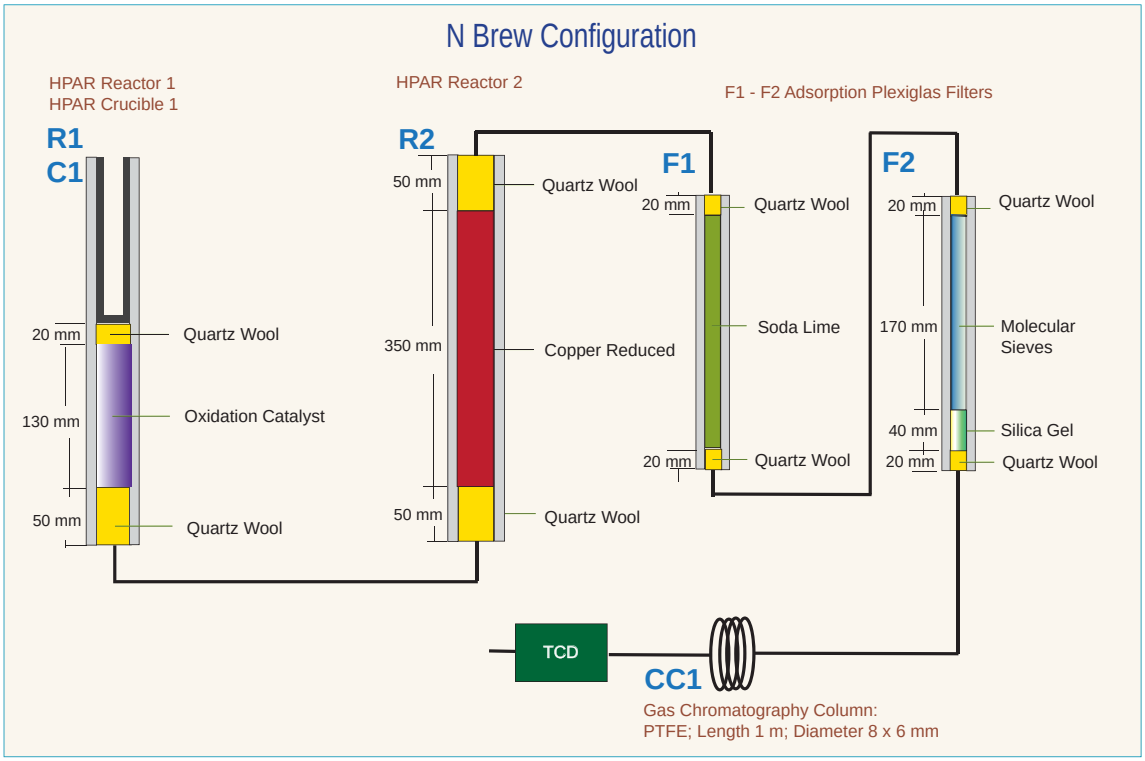
Table 12. Consumables and Spare Parts for N/Protein, N/Brew Determinations

Refer To:	Description	Qty	Part Number
--	Bottom O-Ring for 25 mm HPAR (Set of 5)	1	290 20649
--	Top O-Ring for 25 mm HPAR (Set of 5)	1	290 20682
❍	Quartz Wool	5 g	338 22200
❍	Oxidation Catalyst	40 g	338 40000
❍	High Quality Copper	50 g	338 35312
❍	Soda Lime	100 g	338 35235
❍	Silica Gel plus indicator	100 g	338 40035
❍	Molecular Sieve 3 Å	100 g	338 01801
--	Chromosorb® WAW 30/60 mesh	25 g	338 37530
R1	Prepacked HPAR Reactor; 25 mm OD	1	468 02008
C1	HPAR Crucible	1	252 05011
R1/R2	Empty HPAR Reactor; 25 mm OD	1	468 20075
F1/F2	Empty Adsorption Filter Tube (Large Size) without Fast Connectors	2	281 13064
CC1	Nitrogen Separation Column (PTFE; 0.5 m; 8x6 mm)	1	260 07820
CC1	Nitrogen Separation (N-Brew) Column (PTFE; 1 m; 8x6 mm)	1	260 70004
--	Large “Soft” Tin Containers (Set of 100)	1	252 08000
--	Tin Disk 30 mm diameter (Set of 100)	1	252 08015
--	Tin Disk 35 mm diameter (Set of 100)	1	252 08018
--	Forceps	1	205 00500
--	Large Spatula for Container Filling	1	205 00620
--	Urea STD	10 g	338 40002
--	Aspartic Acid STD	10 g	338 40023
--	Pasta Reference Material	10 g	338 40024

Size of the Filling Material



Size of the Filling Material



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Kits of Consumables and Spare Parts

Kit for 1000 Analyses for Flash*Smart*

Table 13. Consumables for CHN Determination

No	Description	Qty	Part Number
	CHN Determination	**1**	**190 02562**
1	Tin Containers Megabox (Set of 1000)	1	240 06410
2	Quartz Wool (5 g)	1	338 22200
3	Chromium Oxide (25 g)	2	338 22900
4	Silvered Cobaltous-Cobaltic Oxide (25 g)	2	338 24500
5	High Quality Copper (50 g)	4	338 35312
6	Empty Quartz 18 mm OD Reactor Tube (Set of 2)	2	468 20070

Table 14. Consumables for CHNS/NCS/S Determination with no Pre-packed Reactor

No	Description	Qty	Part Number
	CHNS / NCS / S Determination with *Empty* Quartz Reactor	**1**	**190 02564**
1	Tin Containers Megabox (Set of 1000)	1	240 06410
2	Copper Oxide (50 g)	2	338 21730
3	Magnesium Perchlorate [Anhydrone] (100 g) *Only for NCS and S determinations*	1	338 21900
4	Quartz Wool (5 g)	1	338 22200
5	Electrolytic Copper (80 g)	4	338 35314
6	Vanadium Pentoxide (1 g)	1	338 37510
7	Empty Quartz 18-mm Reactor Tube (Set of 2)	2	468 20070

Table 15. Consumables for CHNS/NCS/S Determination with Pre-packed Reactor (Sheet 1 of 2)

No	Description	Qty	Part Number
	CHNS / NCS / S Determination with *Pre-packed* Quartz Reactor	**1**	**190 02565**
1	Tin Containers Megabox (Set of 1000)	1	240 06410
2	Copper Oxide (25 g)	2	338 21730
3	Magnesium Perchlorate [Anhydrone] (100 g)	1	338 21900
4	Vanadium Pentoxide (1 g)	1	338 37510

Table 15. Consumables for CHNS/NCS/S Determination with Pre-packed Reactor (Sheet 2 of 2)

5	Pre-Packed 18-mm OD Quartz Reactor (Set of 4) CHNS/NCS	1	468 02015

Table 16. Consumables for Oxygen Determination

No	Description	Qty	Part Number
	Oxygen Determination	**1**	**190 02563**
1	Silver Containers Megabox (Set of 1000)	1	240 05410
2	Magnesium Perchlorate [Anhydrone] (100 g)	1	338 21900
3	Quartz Wool (5 g)	1	338 22200
4	Quartz Turnings (50 g)	1	338 22300
5	Nickel Plated Carbon (5 g)	4	338 23800
6	Nickel Wool (2 g)	1	338 25000
7	Soda Lime (100 g)	1	338 35235
8	Empty 18 mm OD Quartz Reactor (Set of 2)	1	468 20070

Table 17. Consumables for N Org Determination (1)

No	Description	Qty	Part Number
	N Org Determination	**1**	**190 02566**
1	Tin Containers Megabox (Set of 1000)	1	240 06410
2	Molecular Sieve 3 Å (100 g)	1	338 01801
3	Copper Oxide (25 g)	2	338 21730
4	Quartz Wool (5 g)	2	338 22200
5	Silvered Cobaltous-Cobaltic Oxide (25 g)	2	338 24500
6	Soda Lime (200 g)	2	338 35230
7	High Quality Copper (50 g)	6	338 35312
8	Silica Gel plus indicator (100 g)	1	338 40035
9	Empty 18 mm OD Quartz Reactor (Set of 2)	2	468 20070

Table 18. Consumables for N Lubricant Determination (Sheet 1 of 2)

No	Description	Qty	Part Number
	N Lubricant Determination	**1**	**190 02568**
1	Large “Soft” Tin Containers (Set of 100)	10	252 08000
2	Molecular Sieve 3 Å (100 g)	1	338 01801
3	Quartz Wool (5 g)	2	338 22200
4	Soda Lime (200 g)	2	338 35230
5	High Quality Copper (50 g)	6	338 35312
6	Oxidation Catalyst (40 g)	2	338 40000
7	Silica Gel with Indicator (100 g)	1	338 40035

Table 18. Consumables for N Lubricant Determination (Sheet 2 of 2)

8	Bottom O-Ring 25 mm HPAR (set of 5)	1	290 20649
9	Top O-Ring 25 mm HPAR (set of 5)	1	290 20682

Table 19. Consumables for NC Org Determination

No	Description	Qty	Part Number
	NC Org Determination	**1**	**190 02567**
1	Tin Containers Megabox (Set of 1000)	1	240 06410
2	Copper Oxide (25 g)	2	338 21730
3	Magnesium Perchlorate [Anhydrone] (100 g)	1	338 21900
4	Quartz Wool (5g)	2	338 22200
5	Silvered Cobaltous-Cobaltic Oxide (25 g)	2	338 24500
6	High Quality Copper (50 g)	6	338 35312
7	Empty Quartz 18mm Reactor Tube (Set of 2)	2	468 20070
8	Anhydrone	2	338 21900

Table 20. Consumables for NC Soils

No	Description	Qty	Part Number
	NC-Soil Determination	**1**	**190 02561**
1	Large “Soft” Tin Container (Set of 100)	10	252 08000
2	Magnesium Perchlorate [Anhydrone] (100 g)	1	338 21900
3	Quartz Wool (5 g)	2	338 22200
4	High Quality Copper (50 g)	6	338 35312
5	Oxidation Catalyst (40 g)	2	338 40000
6	Empty 18 mm OD Quartz Reactor Tube (Set of 2)	1	468 20070

Table 21. Consumables for N/Protein (for Solid Samples) (Sheet 1 of 2)

No	Description	Qty	Part Number
	N/Protein Determination (for Solid Samples)	**1**	**190 02560**
1	HPAR Crucible	1	252 05011
2	Large “Soft” Tin Container (Set of 100)	10	252 08000
3	Bottom O-Ring for HPAR Reactor (Set of 5)	1	290 20649
4	Top O-Ring for HPAR Reactor (Set of 5)	1	290 20682
5	Molecular Sieve 3 Å (100 g)	1	338 01801
6	Quartz Wool (5 g)	2	338 22200
7	Soda Lime (200 g)	3	338 35230
8	High Quality Copper (50 g)	12	338 35312
9	Oxidation Catalyst (40 g)	2	338 40000

Table 21. Consumables for N/Protein (for Solid Samples) (Sheet 2 of 2)

10	Aspartic Acid STD (10 g)	1	338 40023
11	Pasta Reference Material (10 g)	1	338 40024
12	Silica Gel plus Indicator (100 g)	1	338 40035

Table 22. N/Protein and N/Brew Determination (for Liquid Samples)

No	Description	Qty	Part Number
	N/Protein Determination (for Liquid Samples with AI/AS autosampler)	**1**	**190 025069**
1	Complete Vials 2 SVW Package (Set of 100)	10	240 14019
2	Vial Solvent 4 mL ST 4-SVQ (Set of 5)	1	240 14032
3	Bottom O-Ring for HPAR Reactor (Set of 5)	1	290 20649
4	Top O-Ring for HPAR Reactor (Set of 5)	1	290 20682
5	Septa for Waste Bottle (Set of 5)	1	313 03218
6	Septa for Flash*Smart* Injections (Set of 50)	1	313 03230
7	Molecular Sieve 3 Å (100 g)	1	338 01801
8	Quartz Wool (5 g)	1	338 22200
9	Soda Lime (200 g)	3	338 35230
10	High Quality Copper (50 g)	6	338 35312
11	Oxidation Catalyst (40 g)	2	338 40000
12	Silica Gel plus indicator (100 g)	2	338 40035
13	Urea STD (10 g)	1	338 40002
14	Screw Caps 8-SC (Set of 5)	10	386 06085

Kit for 5000 Analyses for Flash*Smart*

Table 23. Consumables for N/Protein (for Solid Samples) (Sheet 1 of 2)

No	Description	Qty	Part Number
	N/Protein Determination (for Solid Samples)	**1**	**190 02575**
1	HPAR Crucible	2	252 05011
2	Tin Container (Set of 100)	50	252 08000
3	Bottom O-Ring for HPAR Reactor (Set of 5)	1	290 20649
4	Top O-Ring for HPAR Reactor (Set of 5)	1	290 20682
5	Molecular Sieve 3 Å (100 g)	5	338 01801
6	Quartz Wool (5 g)	10	338 22200
7	Soda Lime (200 g)	15	338 35230
8	High Quality Copper (50 g)	60	338 35312
9	Oxidation Catalyst (40 g)	10	338 40000
10	Aspartic Acid STD (10 g)	2	338 40023

Table 23. Consumables for N/Protein (for Solid Samples) (Sheet 2 of 2)

11	Pasta Reference Material (10 g)	24	338 40024
12	Silica Gel plus Indicator (100 g)	4	338 40035

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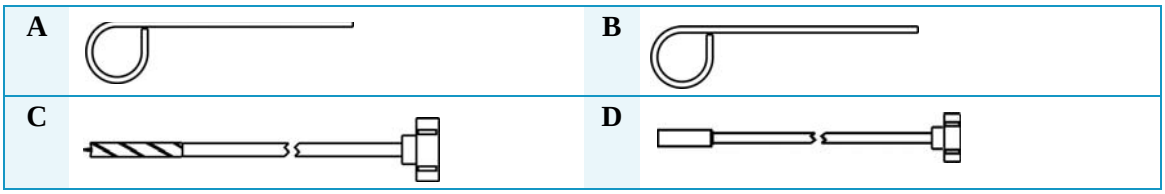
Reactors, Absorption Filters, GC Columns and Fittings

Reactors

Table 24. Reactors, Consumables, O-Rings and Tools

No	Description	Qty	Part Number
1	Empty 18 mm OD Quartz Reactor (Set of 2)	1	468 20070
2	Top O-Ring for 18 mm OD Quartz Reactor (Set of 5)	1	290 22910
3	Bottom O-Ring 18 mm OD Quartz Reactor (Set of 5)	1	290 20640
4	Empty 18 mm OD Quartz Reactor CYL (Set of 2) [for IRMS/HT]	1	468 20060
5	Opaque 18 mm OD Quartz Reactor (Set of 2)	1	468 20000
6	Empty HPAR Reactor 25 mm OD	1	468 20075
7	Top O-Ring for HPAR (Set of 5)	1	290 20682
8	Bottom O-Ring for HPAR (Set of 5)	1	290 20649
9	Ceramic Tube 18 mm	1	468 02010
10	Pre-packed Quartz Reactor for CHNS/NCS/S Determinations	1	468 02015
11	Pre-packed HPAR Reactor for N/Protein/NC-Soils Determinations	1	468 02008
12	Pre-packed Reactor NC/CHN Determinations - Argon sealed	1	468 02009
13	HPAR Crucible	1	252 05011
14	Nickel Sheet 0.15x130x130 mm (Set of 2)	1	252 05110
15	Quartz Crucible (13 mm OD)	1	252 04510
16	HPAR Reactor Extractor (see **A**)	1	205 00626
17	Crucible Extractor (see **B**)	1	205 00627
18	Cleaning Device for HPAR Reactor (see **C**)	1	205 00625
19	Cleaning Device for Quartz Reactor and SS Crucible (see **D**)	1	276 06010

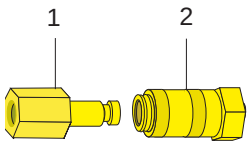


Adsorption Filters

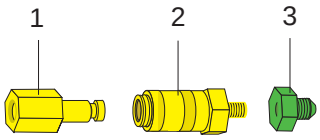
Table 25. Adsorption Filters

No	Description	Qty	Part Number
1	Adsorption Pyrex® Filter FC (Small Size) without Fast Connectors	1	281 13104
2	Adsorption Plexiglas® Filter FC (Large Size) without Fast Connectors	1	281 13064
3	Fast Connectors Couple (Male plus Female) - *See Figure*	1	190 50208
4	Fast Connector Couples plus Fast Connectors Adapters - *See* Figure 1 consisting of: - Fast Connectors (male + female), Set of 2 and Fast Connector Adapters, Set of 2	1	190 50209
5	Sealing O-Ring for Adsorption Filter FC [PN 281 131 04] (Set of 2)	1	290 03635
6	Sealing O-Ring for Adsorption Filter FC [PN 281 130 64] (Set of 2)	1	290 10082

Figure 1. Fast Connection Couples & Fast Connection Couples Plus Fast Connectors Adapters



1. Male Fast Connector
2. Female Fast Connector



1. Male Fast Connector
2. Female Fast Connector
3. Fast Connector Adapter

Table 26. Adsorption Filters (Old Types)*

No	Description	Qty	Part Number
1	Adsorption Filter (Small Size)	1	281 13100
2	Sealing O-Ring for Adsorption Filter [PN 281 131 00] (Set of 2)	1	290 13603
3	Adsorption Filter (Large Size)	1	281 13060
4	Sealing O-Ring for Adsorption Filter [PN 281 130 60] (Set of 2)	1	290 10082

Table 27. Adsorption Traps (Pyrex® Type)**

No	Description	Qty	Part Number
1	Large Adsorption Trap (Pyrex Type) without Fast Connectors	1	281 13106
2	Sealing O-Ring for Pyrex Type Large Adsorption Filter (Set of 2)	1	290 03635

Note ** It substitutes the Absorption Filter (Large Size) with Fast Connectors PN 281 13065 in N/Protein and NC Soil Configurations when the sample contains very high humidity percentage and when several daily analyses are required.

Table 28. Clips for Adsorption Filters

No	Description		Qty	Part Number
1	Clip for Flash*Smart*, 12.5 mm (Set of 2)		1	429 20152
2	Clip for Flash*Smart* - N/Protein, 29 mm (Set of 2)		1	429 20156

Gas Chromatographic Columns

Table 29. Gas Chromatographic Columns

No	Description	Qty	Part Number
1	Multiseparation Column (PTFE; 2 m; 6x5 mm)	1	260 08220
2	Multiseparation Column (SS; 2 m; 6x5 mm)	1	260 07920
3	CHNS/NCS Separation Column (PTFE; 2 m; 6x5 mm)	1	260 08215
4	Oxygen Separation Column (Stainless Steel; 1 m; 6x5 mm)	1	260 07900
5	Sulfur Separation Column (PTFE; 0.8 m; 6x4 mm)	1	260 07800
6	Sulfur Separation Column for OEA / FPD (PTFE; 0.15 m; 6x4 mm)	1	260 07801
7	Nitrogen Separation Column (PTFE; 0.5 m; 8x6 mm)	1	260 07820
8	Nitrogen Separation (N-Brew) Column (PTFE; 1 m; 8x6 mm)	1	260 70004
9	NC Separation Column (SS; 3 m; 6x5 mm)	1	260 07931
10	NC Determination Separation Column (SS; 5 m; 6x5 mm)	1	260 07950

	Characteristics				Analytical Determination										
	Material	Length (cm)	OD (mm)	ID (mm)	CHNS	CHN	NCS	S (TCD)	S (FPD)	Oxygen	N	N/Protein	N/Brew	NC	NC-Soils
Columns	Stainless Steel	100	6	5						✘					
		200	6	5										✘	✘
		300	6	5											
	PTFE	15	6	4					✘						
		50	8	6							✘	✘			
		80	6	4				✘							
		100	8	6									✘		
		200	6	5	✘	✘	✘								

Fittings & Tubes

Table 30. Fittings & Tubes

No	Description	Qty	Part Number
1	O-ring for 6 mm OD tube (Set of10)	1	290 30567
2	Aluminium Ferrule, 2 mm (Set of 10)	1	290 34045
3	Aluminium Ferrule, 4 mm (Set of 10)	1	290 34051
4	Bulkhead Connector 0.2 mm Tubing	1	347 03400
5	Knurled nut for Polyethylene Tube PN 420 100 00	1	350 02124
6	Push Fit Connector Tube; 6 MB Brass (Set of 5)	1	350 34108
7	SS Tubing Nut; 2 mm (Set of 10)	1	350 40403
8	Male hose adapter for Polyethylene Tube PN 420 10000 (Set of 10)	1	350 44137
9	6 MB Brass Blanking Nut (Set of 10)	1	350 45100
10	SS Tube; 2x1 mm	3 m	391 02500
11	Polyethylene Tube, Blue Color; 5x3 mm	1 m	420 10000
12	PTFE Tube; 2x1 mm	1 m	420 01500
13	PTFE Tube; 2x1mm	5 m	420 01501
14	PTFE Tube; 4x2 mm	1 m	420 01600
15	PTFE Tube; 6x4 mm	1 m	420 01700

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Analytical Standards and Reference Materials

Table 31. Analytical Standards

No	Description	Qty	Part Number
1	Acetanilide	2 g	338 36700
2	Aspartic Acid	2 g	338 40022
3	Aspartic Acid	10 g	338 40023
4	Atropine	2 g	338 24400
5	BBOT*	2 g	338 35210
6	Benzoic Acid	2 g	338 22500
7	Cyclohexanone 2,4 DNPH **	1 g	338 22400
8	dl-Methionine	25 g	338 35220
9	Fluorene	1 g	338 21951
10	Imidazole	1 g	338 35430
11	L-Cystine	2 g	338 40018
12	Nicotinamide	2 g	338 40019
13	Polyethylene	1 g	338 40037
14	Polystyrene	1 g	338 40038
15	Sulphanilamide	2 g	338 25100
16	Tocophenol Nicotinate	1 g	338 40036
16	Urea	2 g	338 40001
18	Urea	10 g	338 40002

* 2,5 bis (5-ter-butyl-benzoxazol-2-yl) thiophene; ** Cyclohexanone 2,4-dinitrophenylhydrazone

Table 32. Reference Materials (Sheet 1 of 2)

No	Description	Qty	Part Number
1	Lubricant Reference Material	2 g	338 35240
2	Pasta Reference Material	10 g	338 40024
3	Pasta Reference Material for S determination (OEA / FPD)	2 g	338 40027
4	Soil NC Reference Material	5 g	338 40025
5	Soil NCS Reference Material for NCS determination and S determination (OEA/FPD)	2 g	338 40026

Table 32. Reference Materials (Sheet 2 of 2)

6	OEA/FPD Reference Solutions Kit constituted by 4 flasks (2 mL each) containing 10, 50, 100, and 500 ppm for Sulfur	1	338 19040

Standard

Standard	N%	C%	H%	S%	O%
Acetanilide	10.36	71.09	6.71	---	11.84
Aspartic Acid	10.52	36.09	5.30	---	48.08
Atropine	4.84	70.56	8.01	---	16.59
BBOT	6.51	72.53	6.09	7.44	7.43
Benzoic Acid	---	68.85	4.95	---	26.20
Cyclohexanone 2-4 DNPH	20.14	51.79	5.07	---	23.00
dl-Methionine	9.39	40.25	7.43	21.49	21.45
Fluorene	---	93.94	6.06	---	---
Imidazole	41.15	52.93	5.92	---	---
L-Cystine	11.66	29.99	5.03	26.69	26.63
Nicotinamide	22.94	59.01	4.95	---	13.10
Polyethylene	---	85.71	14.47	---	---
Polystyrene	---	91.95	7.84	---	---
Sulphanilamide	16.27	41.84	4.68	18.62	18.58
Tocophenol Nicotinate	2.61	78.46	9.97	---	8.96
Urea	46.65	20.00	6.71	---	26.64

Reference Material

Reference Material	N%	C%	H%	S%
Lubricant (batch n° O12A)	0.58	76.44	12.00	2.40
Pasta (batch n° H13A)	1.89	---	---	---
Pasta for OEA/FPD (batch n° N12A)	---	---	---	0.134
Soil NC (batch n° N12A)	0.20	2.01	---	---
Soil NCS (batch n° N12A)	0.20	2.01	---	0.032

OEA/FPD Reference Solution Kit

OEA/FPD Reference Solutions Kit
10 ppm of Sulfur (2 mL flask)
50 ppm of Sulfur (2 mL flask)
100 ppm of Sulfur (2 mL flask)
500 ppm of Sulfur (2 mL flask)

IMPORTANT All the standards and the references material are accompanied with a quality certificate including the storage condition and the lifetime of the products.

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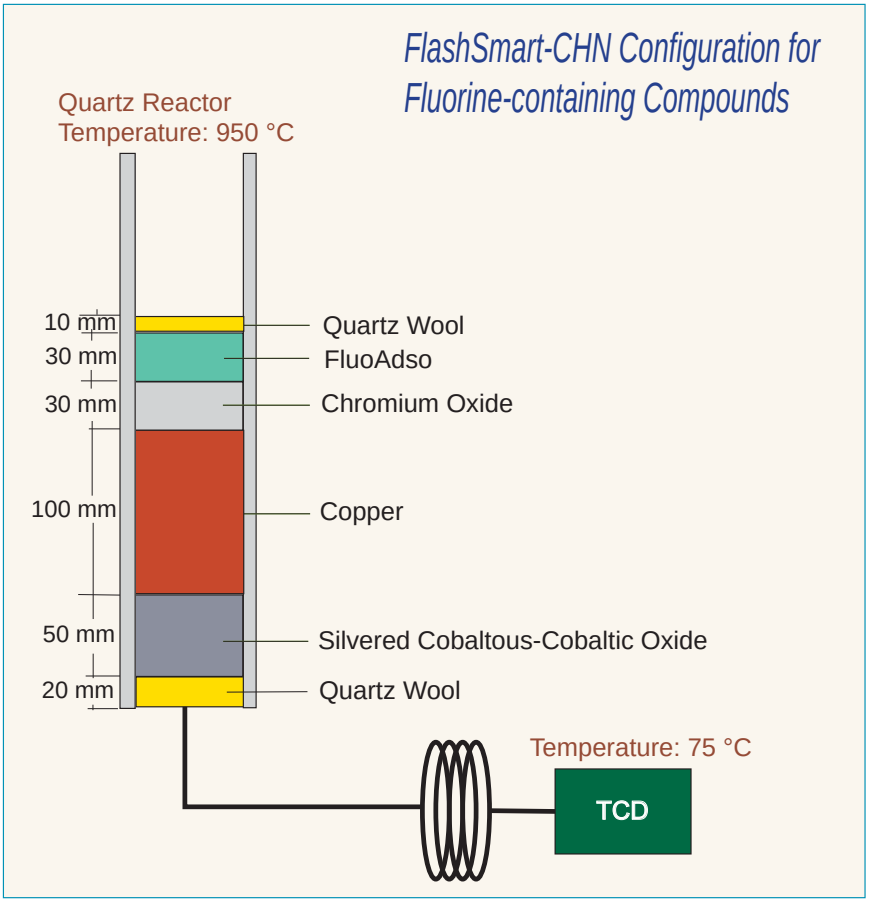
Adsorber for Fluorine Compound

Table 33. Adsorber for Fluorine Compounds

No	Description	Qty	Part Number
1	FluoAdso	15g	338 40030
	Specific adsorber for Fluorine compounds for CHN, NC, and N Determinations		



For more details on CHN determination of Fluorine-containing compounds refer to the OEA Application Note n. 11008.

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Flash*Smart* Upgrade Kits

Kit for Total Organic Carbon (TOC) in Solid Sample PN 190 04145

Total Organic Carbon is a very important parameter for soil or for other organic matrix.

The kit for TOC allows to eliminate all inorganic carbon as Carbon Dioxide by effect of the acidification and heating of the sample in special containers.

Table 34 lists the materials included into the kit.

Table 34. Kit for Total Organic Carbon in Solid Sample

Part Number	Description	Quantity
240 054 05	Silver sample container for solid (Set of 100)	1
334 130 36	Sample holder plate (see Figure 2)	1
354 600 27	Electric heater (see Figure 2)	1
365 005 30	Syringe 1750 LT 500 µL	1

Figure 2. Sample Holder Plate and Electric Heater

Conversion Kit from NC to NCS Determination PN 190 04245

Table 35 lists the materials included into the kit.

Table 35. Conversion Kit from NC to NCS Determination

No	Description	Qty
1	CHNS / NCS Separation Column (PTFE; 2 m; 6x5 mm)	1
2	BBOT* (N: 6.51%; C: 72.53%; S: 7.44%)	1
3	Vanadium Pentoxide (1 g)	1
4	Soil NCS Reference Material (2 g) [The percentage of the elements in this Ref. Mat. will vary batch-to-batch as indicated to analytical data sheet included] Soil NCS R.M. (Batch n. N12A) N%: 0.20; C%: 2.01; S%: 0.032	1
5	Bottom Adapter Connection, 18 mm - 6MB (complete)	1
6	Pre-packed Quartz Reactor for NCS Determination	1

*2,5 bis (5-tert-butyl-benzoxazol-2-yl) thiophene

Conversion Kit from NC to S Determination PN 190 04240

Table 36 lists the materials included into the kit.

Table 36. Conversion Kit from NC to S Determination

No	Description	Qty
1	Sulfur Separation Column (PTFE; 0.8 m; 6x5 mm)	1
2	BBOT* (N: 6.51%; C: 72.53%; S: 7.44%)	1
3	Vanadium Pentoxide (1 g)	1
4	Soil NCS Reference Material (2 g) [The percentage of the elements in this Ref. Mat. will vary batch-to-batch as indicated to analytical data sheet included] Soil NCS R.M. (Batch n. N12A) N%: 0.20; C%: 2.01; S%: 0.032	1
5	Bottom Adapter Connection, 18 mm - 6MB (complete)	1
6	Prepacked Quartz Reactor for NCS Determination	1

*2,5 bis (5-tert-butyl-benzoxazol-2-yl) thiophene

Conversion from CHN to CHNS Configuration PN 190 04246

Table 37 lists the materials included into the kit for upgrading a CHN analyzer to a CHNS.

Table 37. Conversion from CHN to CHNS Configuration

No	Description	Qty
1	CHNS / NCS Separation Column (PTFE; 2 m; 6x5 mm)	1
2	BBOT* (N: 6.51%; C: 72.53%; S: 7.44%)	1
3	Vanadium Pentoxide (1 g)	1
4	Pre-packed Quartz Reactor for CHNS/NCS/S Determinations	1

*2,5 bis (5-tert-butyl-benzoxazol-2-yl) thiophene

Conversion from CHN/CHNS to Oxygen Configuration PN 190 04247

Table 38 lists the materials included into the kit for upgrading a CHN/CHNS analyzer to Oxygen.

Table 38. Conversion from CHN/CHNS to Oxygen Configuration

No	Description	Qty
1	Silver Containers (set of 100)	1
2	Oxygen Separation Column (SS; 1 m; 6x5 mm)	1
3	Empty Adsorption Filter (small size)	1
4	Magnesium Perchlorate [Anhydrone] (100 g)	1
5	Quartz Wool (5 g)	1
6	Quartz Turnings (50 g)	1
7	Nickel Plated Carbon (5 g)	1
8	Soda Lime (100 g)	1
9	Empty Quartz Reactor (Set of 2)	1

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Sample Containers

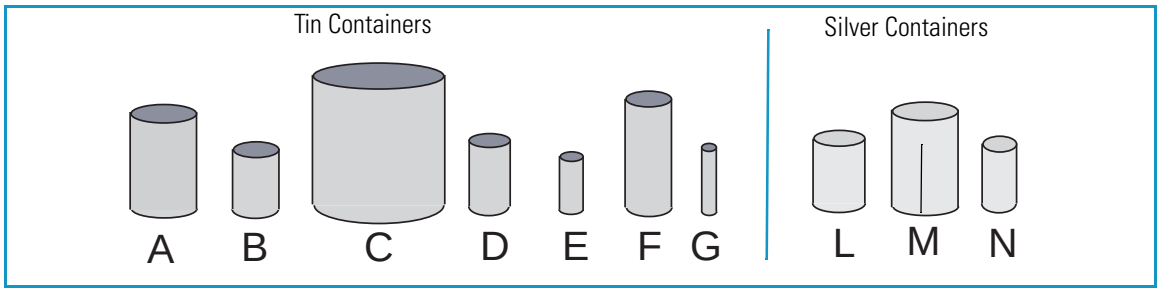
Note You will find here an optimized guide for the best choice of containers tailored to your specific analytical needs, through a detailed specification both for tin and silver containers to be used according to the different applications. To avoid deformation problems and to guarantee a complete use of all the sample containers, these are conveniently supplied and protected in adequate plastic boxes in package of 50 and 100 pieces.

Tin Containers

Table 39. Tin Containers (See Figure 3)

Refer To:	Description	High	Diameter	Qty	Part Number
A	Universal "Soft" Tin Containers	8 mm	5 mm	100	240 06400
	Universal "Soft" Tin Containers Megabox	8 mm	5 mm	1000	240 06410
B	Small "Soft" for Solid Sample	5 mm	3.5 mm	100	240 05300
C	Large "Soft" Tin Containers for N/Protein and N-Brew Analysis	10 mm	10 mm	100	252 08000
D	"Hard" Tin Containers	6 mm	3 mm	100	240 08810
E	"Hard" Tin Containers	4.5 mm	2 mm	100	240 08820
F	"Hard" Tin Containers	9 mm	3.5 mm	50	240 07200
G	"Hard" Tin Capillary Containers	5.5 mm	1.06 mm	50	240 07000
H	Tin Disk	---	30 mm	100	252 08015
I	Tin Disk	---	35 mm	100	252 08018

Figure 3. Tin and Silver Containers



1. "Soft" containers are obtained by pressing light metal foil.
2. "Hard" tin containers are heavier than the "Soft" ones and allow hermetic sealing. For this reason the "Hard" tin containers are obtained by moulding ultrapure tin sheets.

Tin Container Type	Use
A	Recommended for **solid** samples (organics, soils, sediments, food, plastic, coal, and so on), or **liquid** samples adsorbed on inert solid material Chromosorb® WAW 30/60 mesh (PN 338 37530). See Figure 3.
B	Recommended for solid samples.
C	Recommended for N/Protein and N-Brew Determinations.
D	Recommended for the analysis of any viscous sample. See Figure 4.
E	Recommended for the analysis of any liquids. For volatile liquids we recommended the use of liquid sealing device (PN 205 03002).
F	Suggested for analysis of trace elements (N, C, S) in liquids such as water, wine, beer, milk, urine, and so on.
G	Suggested for the analysis of liquid samples when the material is available in very small amounts. Useful for volatile samples. The use of Sealing Device (PN 205 03002) is highly recommended. For more details on Sealing Device see Chapter 19, "Sample Preparation Accessories."
H	Use Sealing Device (PN 252 09010)
I	Use Sealing Device (PN 252 09010)

Silver Containers

Table 40. Silver Containers (See Figure 3)

Refer To:	Description	High	Diameter	Qty	Part Number
L	Universal "Soft" Silver Containers	6 mm	4 mm	100	240 05400
	Universal "Soft" Silver Containers Megabox	6 mm	4 mm	100	240 05410
	Silver Container Megabox	6 mm	4 mm	1000	24005410
M	"Soft" Silver Containers	8 mm	5 mm	100	240 05405
N	"Hard" Silver Containers	5 mm	2 mm	50	240 05100

Silver Container Type	Use
L	Recommended for Oxygen determination for solid samples.
M	Recommended for Total Organic Carbon (TOC) determination according to the Thermo Fisher Scientific method (patent n. 90110186.5). See Figure 5. See "Kit for Total Organic Carbon (TOC) in Solid Sample PN 190 04145" on page 50.
N	Recommended for Oxygen analysis of liquid samples (e.g. gasoline). The Sealing Device (PN 205 030 02), is highly suggested for these liquid samples.

Figure 4. Sampling Technique

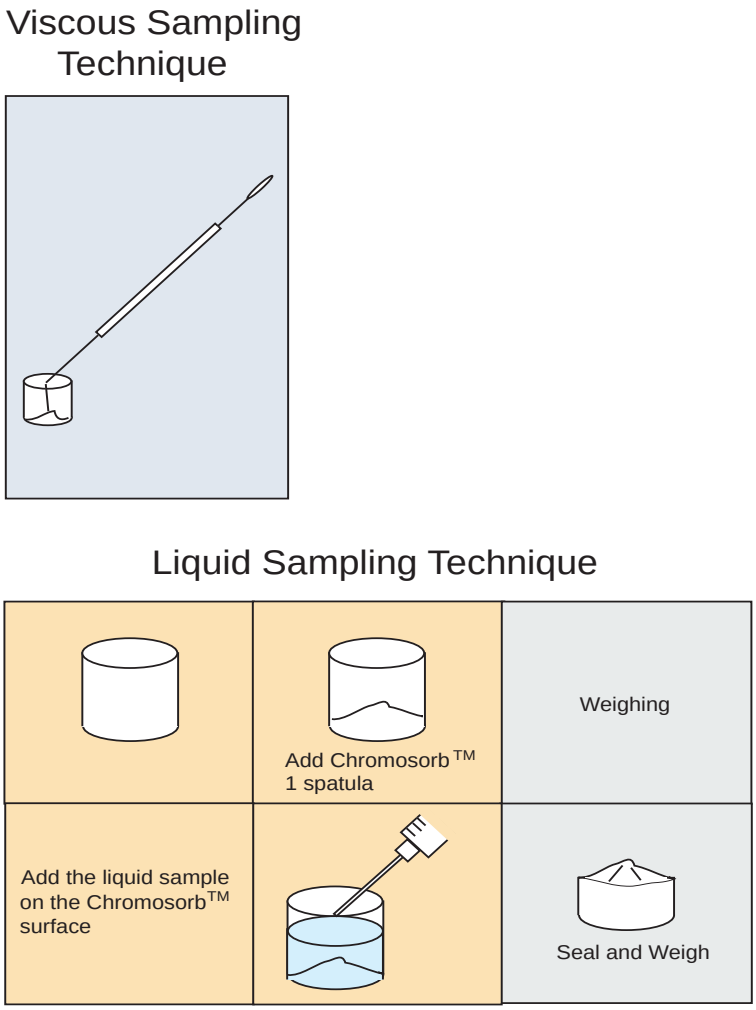
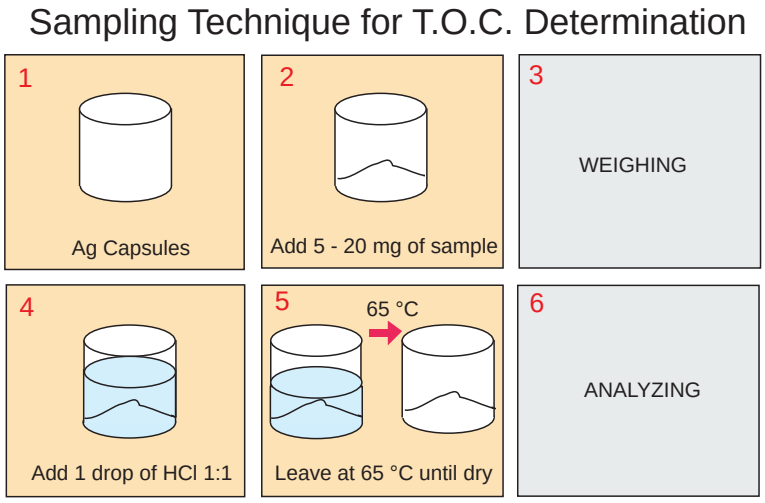


Figure 5. T.O.C. Determination



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Sample Preparation Accessories

Table 41. Sample Preparation Accessories

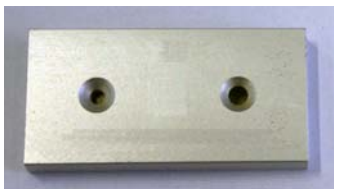
Refer To:	Description	Qty	Part Number
A	Sample Support Plate	1	205 00310
B	Sealing Device for Large Tin Containers	1	252 09010
C	Sealing Device for Liquid Containers	1	205 03002
D	Sample Holder (small size)	1	240 10053
	Sample Holder (large size)	1	240 10054
	Reactor Holder	1	240 10057
E	Cleaning Device for Quartz Reactor and Crucible	1	276 06010
F	Cleaning Device for HPAR Reactor	1	205 00625
--	Forceps	1	205 00500
--	Crucible Extractor	1	205 00627
--	HPAR Extractor	1	205 00626
--	Small Spatula for Container Filling	1	205 00600
--	Large Spatula for Container Filling	1	205 00620
--	Syringe 100 µL (710 SNR)	1	365 00204
--	Syringe 10 µl	1	365 02001

Table 42. Accessories Description

Reference	Comments
A	*Available on request*.
B	Inserted in N/Protein, N-Brew, NC-Soils, NC-Sediments and NC Filters Standard Outfit.
C	Liquid device for liquid containers (*available on request*), allows the analysis of hygroscopic solid compounds and volatile liquid substances without variation of weight. The samples are introduced in the container using a spatula, syringes or generic needles. We suggest the use of liquid tin containers or capillaries according to the viscosity of the liquid sample. The container is then placed in the sealing device slide. The container is to be purged with a flow of Oxygen or Helium before closing. The container is tightly closed and the constancy of weight is monitored by an electronic balance. For liquids with high vapor pressure use tin capillaries: the treatment with inert gas in not necessary because the vapor pressure generated by the liquid sample is sufficient to flush the atmospheric gases from the container.
D	**Sample Holder (small size)** is used to carry up to 90 weighed and sealed containers from the balance to the autosampler mounted on the instrument. **Sample Holder (large size)** is used to carry up to 12 weighed and sealed containers from the balance to the autosampler mounted on the instrument. **Reactor Holder**, *available on request*, is used to place reactors and crucibles.
E	Available in all *FlashSmart* Standard Outfit Configurations. Recommended tools to clean the reactor when replacing the catalyst.
F	Inserted in N/Protein, N/Brew and NC Soils Standard Outfit.

Figure 6. Accessories

A



B

C

D

E

F

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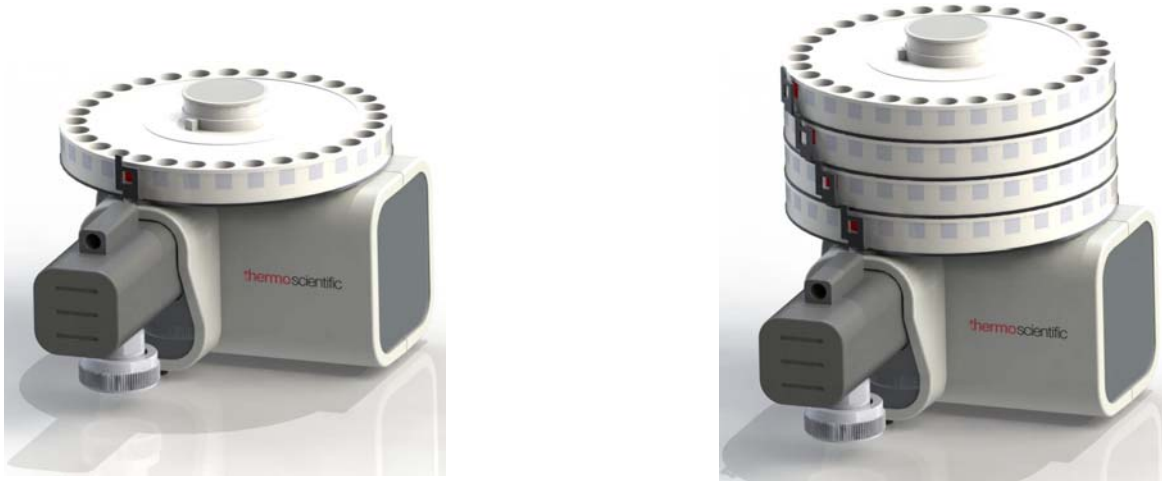
MAS Plus Autosampler for Solid Samples

MAS Plus Autosampler for sold samples is shown in Figure 7.

Figure 7. MAS Plus Autosampler for Solid Samples



Spare Parts

Table 43. MAS Plus Autosampler for Solid Sample - Spare Parts (Sheet 1 of 2)

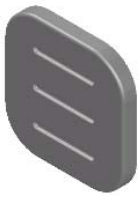
No	Description	Qty	Part Number
1	MAS Plus Autosampler (complete) one drum	1	251 06100
2	Loading Spring	1	315 05211
3	Positioning Spring	1	315 05212
4	Gear Plate	1	358 00626
5	MAS Plus Geared Motor	1	318 07628
6	MAS Plus Aluminium Front Cover 	1	241 05536
7	MAS Plus Complete Shaft (piston)	1	343 01512

Table 43. MAS Plus Autosampler for Solid Sample - Spare Parts (Sheet 2 of 2)

7	MAS Plus Drum No 1 (1-32 Position)		1	240 06401
8	Additional MAS Plus Drum No 2 (33 - 63 Position)		1	240 06402
9	Additional MAS Plus Drum No 3 (64 - 94 Position)		1	240 06403
10	Additional MAS Plus Drum No 4 (95 - 125 Position)		1	240 06404
11	Window O-ring (Set of 10)		1	290 30014
12	MAS Plus Internal O-ring (Set of 10)		1	290 30017
13	MAS Plus Plastic Cover		1	241 04477
14	MAS Plus Assembly Motor		1	318 07624
15	MAS Plus Plastic Inner Window		1	301 08020
16	MAS O-ring Removal Tool		1	205 02613
17	Green O-ring Mas Plus shaft (set of 3)		1	290 30343

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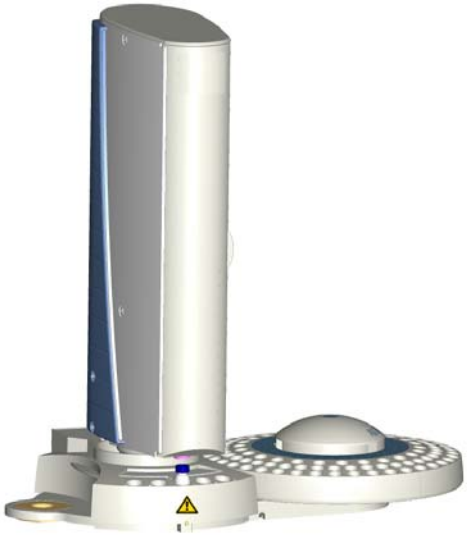
AI/AS 1310 Autosampler for Liquids for Flash*Smart*

AI 1310



AS 1310

Table 44. AI 1310 / AS 1310 Autosampler for Liquid Samples for Flash*Smart*

No	Description	Qty	Part Number
1	AI 1310 for liquids	1	251 17571
2	AS 1310 for liquids	1	251 17572
3	Upgrade option AI 1310 to AS 1310	1	190 50294
4	0.5 µL syringe	1	365 04045
5	10 µL syringe	1	365 00525
6	50 µL syringe	1	365 04040
7	100 µL syringe	1	365 04041
8	250 µL syringe	1	365 04042
9	8-position tray with label	1	240 10140
10	105-position tray for AS 1310	1	240 10145

Table 44. AI 1310 / AS 1310 Autosampler for Liquid Samples for Flash*Smart*

11	Waste bottle complete with 5 septa and caps	1	240 12416
12	Complete Vials 2 SVW Package (Set of 100) - Sample Vials [Screw top cap and septa are included]	1	240 14019
13	Vial Solvent 4 mL S T4-SVQ (Set of 5) - Solvent Vials [Screw top cap and septa are included]	1	240 14032
14	Septa 8-ST (Set of 5) [This septa can be used for Sample Vials and Solvent Vial; see points 12 and 13]	1	313 03218
15	BTO Septa for Flash*Smart* injector (Set of 50)	1	313 03230
16	Screw Caps 8-SC for sampling vials and solvents vials (Set of 100)	1	386 06074
17	Screw Caps 8-SC for sampling vials and solvents vials (Set of 5)	1	386 06085
18	Insulating Collar	1	321 00310
19	Insulating Injector for Biodiesel For more details on Biodiesel liquid samples (AS 1310 and insulating injector & collar) require the OEA Application Note n. 11008	1	247 05250

Table 45. AI 1310 / AS 1310 AI/AS 1310 Spare Parts

No	Description	Qty	Part Number
1	AI/AS 1310 M/S printing circuit board assembly	1	152 20080
2	Complete Base assembly AI/AS 1310	1	221 07110
3	Complete Top cover assembly AI/AS 1310	1	241 05570
4	Slide stepper motor AI/AS 1310	1	318 02925
5	Front door AI/AS 1310	1	333 30950
6	AI/AS 1310 bracket for Flash*Smart*	1	368 12742
7	Complete Tower assembly AI/AS 1310	1	370 01440

Table 46. AI 1310 / AS 1310 Cables

No	Description	Qty	Part Number
1	Power Cable 10A/250V	1	230 33000
2	Power Cable 10A/125V	1	230 33035
3	RS232 cable	1	230 43501
4	Flat Cable Flex 26F/16F	1	230 45665

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Accessories for Injection of Liquid and Gas Samples

Table 47. Accessories for Injection of Liquid and Gas Samples

No	Description	Qty	Part Number
1	Manual Injection kit for Liquid or Gas Sampling	1	190 04138

The kit includes:

- Injector body for OEA
- Coupling joint for liquid/gas
- Injection connection
- Different septum holders for every Flash*Smart* and previous OEA models
- Syringes = 10 µL; 100 µL; 500 µL
- Septa BTO 11.5 mm OD (Set of 50)

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Recommended Spare Parts

Table 48. Recommended Spare Parts

No	Description	Qty	Part Number
1	Complete Furnace (25 mm furnace adapter) for Flash*Smart*. *See Note	1	350 06100
2	HWD 430 Detector	1	419 07510
3	Heater for Oven	1	354 21510
4	Temperature Sensor Pt 100 for Oven	1	403 11095
5	Thermocouple Pt/Pt-Rh	1	403 20005
6	Furnace Transformer for all Flash*Smart* versions	1	413 25075
7	3.6 V Battery	1	219 01505
8	Fan V2S	1	406 00300
9	Fuse, slow-blow, 1.6 A, 5x20 mm	1	282 04018
10	Fuse, slow-blow, 800 mA, 5x20 mm	1	282 05011
11	Breaker 7 A	1	237 09912
12	Pressure Regulator for Helium and Oxygen	1	425 06800
13	Manometer (0-500 kPa)	1	367 16041
14	Bulkhead Fitting for 2 mm OD Tubings	1	347 03100

Note * Complete Furnace includes the Pt/Pt-Rh thermocouple

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Flash*Smart* FPD Option

The OEA / FPD option — **PN 432 10145** — increases the sensitivity in **Sulfur** determination by using a highly selective and sensitive Flame Photometric Detector (FPD) coupled with the Flash*Smart* Elemental Analyzer.

This FPD option can be applied to any Flash*Smart* configuration and it allows the determination of trace Sulfur (low limit: 10 ppm) in both liquid and solid compounds.

The OEA / FPD option comprises of:

- FPD EA Detector Module that includes the FPD detector and the pneumatic circuit to control the detector gases flows PN 432 09886
- FPD Control Module to control the detector parameters PN 432 09886.
- FPD Standard Outfit PN 165 00110

Figure 8. Flash*Smart* with FPD Option

FPD Performance Specifications

Table 49. FPD Performance Specifications

Performance Specifications	
Low Limit	0.0005-0.0010% (5-10 ppm) Sulfur
Max Limit	0.5% (5000 ppm) Sulfur (for more info refer to Flash*Smart* Technical Specifications)
Gas Requirements	Helium Chromatographic-grade purity Air 99.995%; Hydrogen 99.995%
Power Requirements	120/230 Vac; 50/60 Hz
Host Hardware Requirements	Pentium Processor-operating system Windows® 2000, XP, Vista, Windows 7, or Windows 8
Host Software Requirements	Eager*Smart*
Dimension	Gas Control Box: 177 x 235 x 287 mm (l x h x d) FPD Control Module: 180 x 85 x 485 mm (l x h x d)
Mass	Gas Control Box: 5 kg FPD Control Module: 6 kg

OEA / FPD Reference Material

Table 50. OEA / FPD Reference Material

Description	Qty	Part Number
Pasta Reference Material for Sulfur Determination (OEA/FPD)	2g	338 400 27
Soil Reference Material	2g	338 400 26
Reference Solutions Kit includes four flasks (2 mL each) containing 10, 50, 100, and 500 ppm of Sulfur	1	338 190 40

OEA / FPD Detector Spare Parts

Refer to the following table:

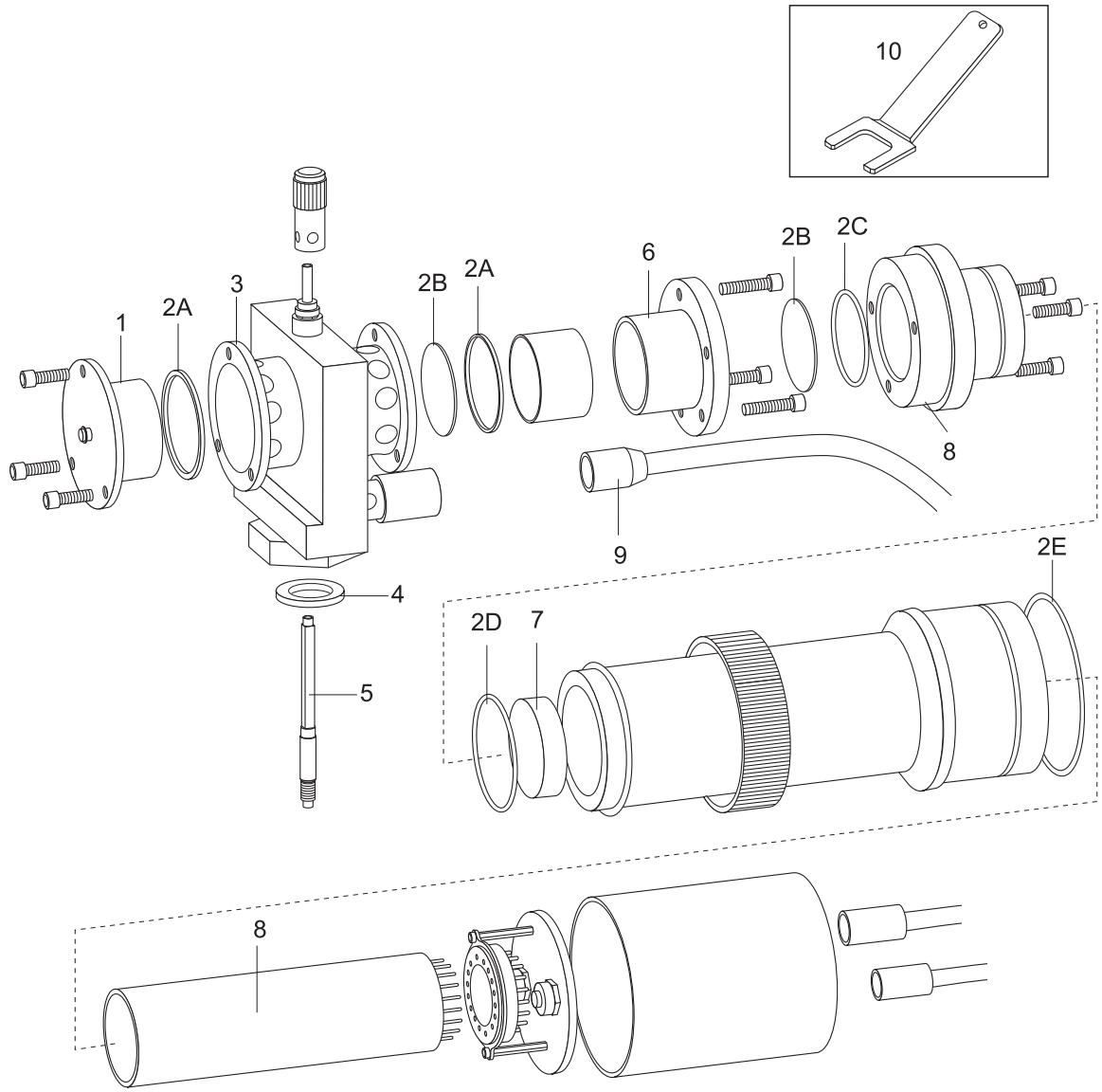
Table 51. Flame Photometric Detector Spare Parts (Sheet 1 of 2)

Ref.	Description		Qty.	Part Number
1	Mirror plug			350 053 50
2A	Maintenance kit for FPD	Graphite seal	2	190 045 89
2B		Heat shield	2	
2C		Viton™ O-ring 3106	1	
2D		Viton™ O-ring 3175	1	
2E		Viton™ O-ring 75 SH	1	
3	Detector body		1	190 501 11
4	Aluminium O-ring		1	290 032 30

Table 51. Flame Photometric Detector Spare Parts (Sheet 2 of 2)

5	FPD jet	1	404 045 11
6	Flange and relevant Viton™ O-ring	1	368 142 35
7	Interferential filter for Sulfur	1	281 070 00
8	Photomultiplier	1	286 004 50
9	Heater/sensor/coil cable (1.5 m)	1	230 435 87
10	FPD fixing tool	1	205 021 50
	Silcosteel tubing 1 m; 0.4 mm OD x 0.25 mm ID	1	391 100 25
	Graphite ferrule ID 0.45 for silcosteel tubing (Set of 2)	1	290 134 87
	Nut for silcosteel tubing (Set of 5)	1	350 324 23

Figure 9. FPD Spare Parts



25

Electronic Flow Controller (EFC-t) Module

Helium Standard EFC-t Module

Table 52. EFC-t Module

No	Description	Qty	Part Number
1	EFC-t Module (complete) for *FlashSmart* models The kit includes: - Flow Sensor - 2-way Valve (Normally Open) - 2-way Valve (Normally Closed) - Proportional Valve - 3-way Valve	1	425 09150
2	Double Connection Module	1	222 04625

Argon Option EFC-t Module Kit for N Determinations

Table 53. Argon Option EFC-t Module Kit for N determinations

No	Description	Qty	Part Number
1	EFC-t Module (complete) for *FlashSmart* models with Argon option The kit includes: - EFC-t Argon Module (complete) - CD-ROM or DVD or USB stick Eager*Smart* Software - Flash*Smart* Argon Option Firmware Ver. 1.12 - N Separation Column (PTFE, 1 m) - Argon Gas Up grade Kit for N determination Installation Guide	1	190 04330
2	Double Connection Module	1	222 04625

Argon Option EFC-t Module Kit for NC Determinations

Table 54. Argon Option EFC-t Module Kit for NC determinations

No	Description	Qty	Part Number
1	EFCt Module (complete) for *FlashSmart* models with Argon option The kit includes: - EFC-t Argon Module (complete) - CD-ROM or DVD or USB stick Eager*Smart* Software - *FlashSmart* Argon Option Firmware Version 1.12 - NC Argon Option Separation Column (SS, 5 m) - Argon Gas Up grade Kit For NC determination Installation Guide	1	190 04340
2	Double Connection Module	1	222 04625

Argon Option EFC-t Module Kit for N and NC Determinations

Table 55. Argon Option EFC-t Module Kit for NC determinations

No	Description	Qty	Part Number
1	EFC-t Module (complete) for Flash*Smart* models with Argon option The kit includes: - EFC-t Argon Module (complete) - CD-ROM or DVD or USB stick Eager*Smart* Software - N Separation Column (PTFE, 1 m) - NC Argon Option Separation Column (SS, 5 m) - Flash*Smart* Argon Option Firmware Version 1.12 - Argon Gas Up grade Kit for N determination Installation Guide - Argon Gas Up grade Kit For NC determination Installation Guide	1	190 04350
2	Double Connection Module	1	222 04625

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Flash*Smart* Electronics and Cables

Printed Circuit Boards (RoHS Compliance)

Table 56. Printed Circuit Boards

No	Description	Qty	Part Number
1	TRF1112 Transformer Board	1	236 48445
2	MB1112 Mother Board	1	236 48450
3	AC1112 Alternative Current Board	1	236 48455
4	TCR1112 Thermo Control Board	1	236 48460
5	HWD1112 TCD Control Board	1	236 48465
6	CPU1112 Central Processing Board	1	236 48470
7	PWR1112 Power Supply Card	1	236 48480
8	DPFC1112 Electronic Flow Control Board	1	236 48490
9	LTA-1 Thermo Coupled Linearizer Box	1	209 01700
10	Front Panel Board	1	23648413

Cables

Table 57. Cables

No	Description	Qty	Part Number
1	Power Cable (Part of the Flash*Smart* Standard Outfit)	1	230 33000
2	RS 232 Cable with Ferrite (Part of the Flash*Smart* Standard Outfit)	1	230 43145
3	Cable Assy 9P F/F Curly	1	230 038132

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Eager*Smart* Ethernet A/D

RS232/USB Converter PN 230 38131

The UPort 1110 connects USB to serial adapter enables a serial device to be connected to a computer through the USB port. The unit features a portable design that does not require external power or complicated setup procedures. A DVD with drivers is included (Window® 98, 2000, XP, Vista, Window®7, Window®8 and Window®10). LEDs for indicating USB and transmission data (TxD), and receiving data (RxD) activity are present.

IMPORTANT The RS232/USB converter is now included in the Flash*Smart* standard outfit but it can be ordered separately.

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Single to Double Furnace Upgrade Kit

The kit allows to transform the configuration of your analyzer, for example CHN or CHNS, equipped with a single furnace, in a configuration having two furnaces (18 mm OD), for example CHN-O or CHNS-O.

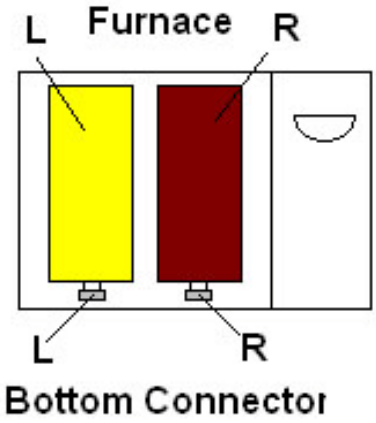
The kit is suitable for every Flash*Smart* models.

Table 58. Single to Double Furnace Upgrade Kit

No	Description	Qty	Part Number
1	Single to Double Furnace Upgrade Kit The kit includes: - Furnace (Complete) - Connections - Fittings - Accessories - Cable - Instruction manual	1	190 04281

Figure 10. Furnace Compartment

Furnaces Transformation Kits



Flash*Smart* Configuration

Configuration	Reactor Into Left Furnace	Left Furnace Bottom Connector	Reactor into Right Furnace	Right Furnace Bottom Connector
CHN, CHNS, NCS, O	18 mm	2x1 mm	none	none
CHN/O or CHNS/O	18 mm	2x1 mm	18 mm	2x1 mm
N Org	18 mm	4x2 mm	18 mm	4x2 mm
N Lubricant	25 mm	6x4 mm	25 mm	6x4 mm
NC org	18 mm	4x2 mm	18 mm	4x2 mm
NC Soils	25 mm	4x2 mm	18 mm	4x2 mm
N / Protein	25 mm	6x4 mm	25 mm	6x4 mm

Transformation Kits Available

IMPORTANT The transformation kits do not include the furnace but the adapters, connectors, plate assembly, and so on.

According to the option reported in Table A and Table B, four different kits are available:		
1	Transformation furnace kit (from 25 to 18 mm, bottom connector 2x1 mm)	190 04253
2	Transformation furnace kit (from 25 to 18 mm, bottom connector 4x2 mm)	190 04254
3	Transformation furnace kit (from 18 to 25 mm, bottom connector 6x4 mm)	190 04273
4	Transformation furnace kit (from 18 to 25 mm, bottom connector 4x2 mm)	190 04274

Example: from CHNS/O to NC Soils model

CHNS/O: 2 furnaces 18 mm; both bottom connections 2x1 mm

NC Soils: 2 furnaces (25 mm, 18 mm); bottom connection 4x2 mm

For this modification needs:
- Transformation kit (from 18 to 25 mm, Bottom Connector 4x2) n.1
- Bottom Connection (18 mm, 4x2 mm) n.1
- A 4 x 2 SS tubing and relative joints

If the User Wants to Add a New Furnace (and Upgrade the Instrument Configuration)

In this case the user needs need a complete furnace and a transformation furnace kit. A furnace will be chosen according to the application (18 or 25 mm type) while the kit will be used for find all the top level Flash*Smart* reactor connection (on the top level of the instrument) and for the bottom connection according to the analysis requested:

18 mm, bottom connection 2x1 mm
18 mm, bottom connection 4x2 mm
25 mm, bottom connection 6x4 mm
25 mm, bottom connection 4x2 mm

Example: CHN (single furnace) → CHN/O (double furnaces)

For this modification needs:

- Complete furnace (18 mm diameter) p/n 354 60021
- Transformation kit (18 mm, bottom Connector. 2x1 mm) p/n 190 04251
- 2 x 1 SS tubing and relative joints

Transformation Furnace Kits List

The items inserted in the transformation kits are here listed:

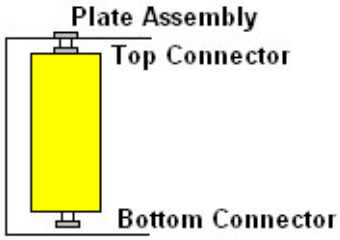


Table 59. Transformation Furnace Kit 18 to 25 mm bottom connection 6x4 mm

No	Description	Qty	Part Number
Transformation Furnace Kit from 18 to 25 mm bottom connection 6 x 4 mm		**1**	**190 04273**
1	Bottom O-ring (Set of 5)	1	
2	Top O-ring (Set of 5)	1	
3	Aluminium Ferrule; 2 mm diameter (Set of 10)	1	
4	6MB nut (Set of 10)	1	
5	Nut 1" 1/4	1	
6	Knurled Nut for Polyethylene Tube (5x3 mm)	4	
7	Tube connector for PTFE; 5x3 mm	4	
8	Top Connector (25 mm)	1	
9	Screw (4x20 mm)	2	
10	Polyethylene Tube; 5x3 mm; 1 m	1	
11	Clip (Filter fixing)	4	
12	Pressure Equilibration Cylinder	1	
13	Clip (Pressure Equilibration Cylinder fixing)	1	
14	Teflon Tube; 2x1 mm; 5 m	1	
15	Bottom Connection (25 mm diameter; 6x4 mm)	1	
16	PTFE Tube; 6x4 mm; 1 m	1	
17	OR/OV Viton® (Set of 10)	1	
18	Nut, M 12x1 mm	2	

Table 60. Transformation Furnace Kit from 18 to 25 mm bottom connection 4x2 mm

No	Description	Qty	Part Number
Transformation Furnace Kit from 18 to 25 mm bottom connection 4 x 2 mm		**1**	**190 04274**
1	Bottom O-ring (Set of 5)	1	
2	Top O-ring (Set of 5)	1	
3	Aluminium Ferrule 2 mm diameter (Set of 10)	1	
4	6MB nut (Set of 10)	1	
5	Nut 1" 1/4	1	
6	Top Connector (25 mm)	1	
7	Screw (4x20 mm)	2	
8	Clip (Filter fixing)	4	
9	Teflon Tube; 2x1 mm; 5 m	1	
10	Bottom Connection (25 mm diameter; 4x2 mm)	1	
11	PTFE Tube; 4x2 mm; 1 m	1	
12	4 mm OD Ferrule (Set of 10)	1	
13	Nut, M10x1 mm	2	

Table 61. Transformation Furnace Kit from 25 to 18 mm bottom connection 2x1 mm

No	Description	Qty	Part Number
Transformation Furnace Kit from 25 to 18 mm bottom connection 2 x 1 mm		**1**	**190 04253**
1	Bottom O-ring for 18 mm OD Quartz Reactor (Set of 5)	1	
2	Top O-ring for 18 mm OD Quartz Reactor (Set of 5)	1	
3	6MB nut (Set of 10)	1	
4	Nut 304	1	
5	Top Connector (18 mm)	1	
6	Screw for Filter Clip	2	
7	Filter Clip (Set of 2)	1	
8	Teflon Tube; 2x1 mm; 5 m	1	
9	Bottom Connection; 18 mm diameter; 2x1 mm	1	
10	Stainless Steel Tube; 2x1 mm; 3 m	1	
11	Ferrule (Set of 10)	1	

Table 62. Transformation Furnace Kit from 25 to 18 mm bottom connection 4x2 mm

No	Description	Qty	Part Number
Transformation Furnace Kit from 25 to 18 mm bottom connection 4 x 2 mm		**1**	**190 04254**
1	Bottom O-ring for 18 mm OD Quartz Reactor (Set of 5)	1	
2	Top O-ring for 18 mm OD Quartz Reactor (Set of 5)	1	
3	6MB nut (Set of 10)	1	
4	Stainless Steel Tube; 2x1 mm; 3 m	1	
5	Top Connector 18 mm	1	
6	Screw for Filter Clip	2	
7	Filter Clip (Set of 2)	1	
8	Nut 304	1	
9	Bottom Connection; 18 mm diameter; 4x2 mm	1	
10	PTFE Tube (4x2 mm); 1 m	1	
11	Ferrule 4 mm (Set of 10)	1	
12	Hexagonal Nut M10x1	2	
13	Ferrule 2 mm (Set of 10)	1	
14	PTFE Tube; 2x1 mm; 5 m	1	

Items for Transformation Furnace

Plate Assembly

No	Description	Part Number
1	Adapter Plate 18 mm	267 02724
2	Adapter Plate 25 mm	267 02725

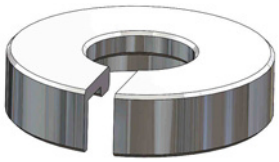
Top Connections

No	Description	Part Number
1	Top Connector 18 mm	350 08421
2	Top Connector 25 mm	350 08423

Furnace Adapters

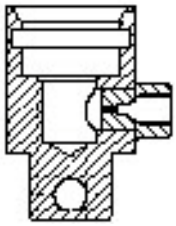
The 18 mm washer adapter is placed on the top of the furnace.

Under the washer is placed the suitable seal.

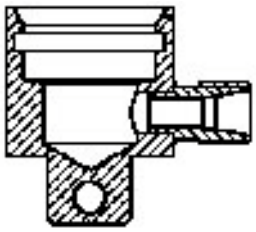


No	Description	Part Number
1	Furnace Adapter 25/18 mm	267 02723
2	Seal for Furnace Adapter 18 mm	290 03632
3	Seal for Furnace Adapter 25 mm	290 03633

Bottom Connections



Bottom Connection 18 mm Diameter



Bottom Connection 25 mm Diameter

No	Description	Part Number
1	Bottom Connection (18 mm diameter; 2x1)	350 08433
2	Bottom Connection (18 mm diameter; 4x2)	350 08432
3	Bottom Connection (25 mm diameter.; 6x4)	350 08426
4	Bottom Connection (25 mm diameter; 4x2)	350 08431

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MultiValve Control (MVC) Module

MultiValve Control (MVC) Module is shown in Figure 11.

Figure 11. MultiValve Control (MVC) Module

Spare Parts

Table 63. MultiValve Control (MVC) Module - Spare Parts

No	Description	Qty	Part Number
1	MultiValve Control Module Kit for Flash*Smart*	1	190 02473
2	MultiValve Control Module	1	432 16010

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Flash*Smart* System Qualification Package

Qualification is a process to evaluate and certify the performances of the instrument.

Qualification is a process of signing, dating and executing a Set of qualifications which can be stored in the Thermo Scientific Qualification folder.

FlashSmart equipment and the relative Flash*Smart* software is validated for the installation (Installation Qualifications IQ), and operation (Operation Qualification OQ).

The procedure requires typically two (2) days of "on-site" testing including executing, dating, and signing a Set of qualifications which are stored in the Thermo Scientific Qualification Folder.

No	Description	Qty	Part Number
1	Flash*Smart* System Qualification Package Folder Including AI/AS 1310 – AI/AS 3000 II for OEA Qualification Package	1	199 10022

For the Flash Qualification are requested:

- The **Flash Qualification Package folder** (PN 199 10022)
- One (or more) **Qualification kit** according to the configuration which consists of consumables, standards, filters and GC separation column (all components required for the qualification procedure).

Chart of Qualification Kits

No	Description	Qty	Part Number
1	CHN Qualification Kit	1	190 04280
2	CHNS Qualification Kit	1	190 04285
3	O Qualification Kit	1	190 04290
4	N Org Qualification Kit	1	190 04295
5	N Lubricant Qualification Kit	1	190 04360
6	NC Org Qualification Kit	1	190 04300
7	NCS Qualification Kit	1	190 04305
8	NC-Soil Qualification Kit	1	190 04310
9	N/Protein Qualification Kit	1	190 04315
10	N-Brew Qualification Kit	1	190 04320
11	AI/AS for OEA Qualification Kit	1	190 04325

WARNING The Flash*Smart* Qualification can be done with Thermo Fisher Scientific OEA consumables exclusively. The Flash*Smart* Qualification can be carried out only by trained Thermo Fisher Scientific OEA specialist.

A

Customer Communication

Thermo Fisher Scientific provides comprehensive technical assistance worldwide and is dedicated to the quality of our customer relationships and services.

How to Contact Us

This appendix contains contact information for Thermo Fisher Scientific office. To contact your local Thermo Fisher Scientific office or affiliate, please refer to:

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