

Multiseal[®]

Eco-friendly liquid
sealants and
corrosion
protection

Product Catalogue

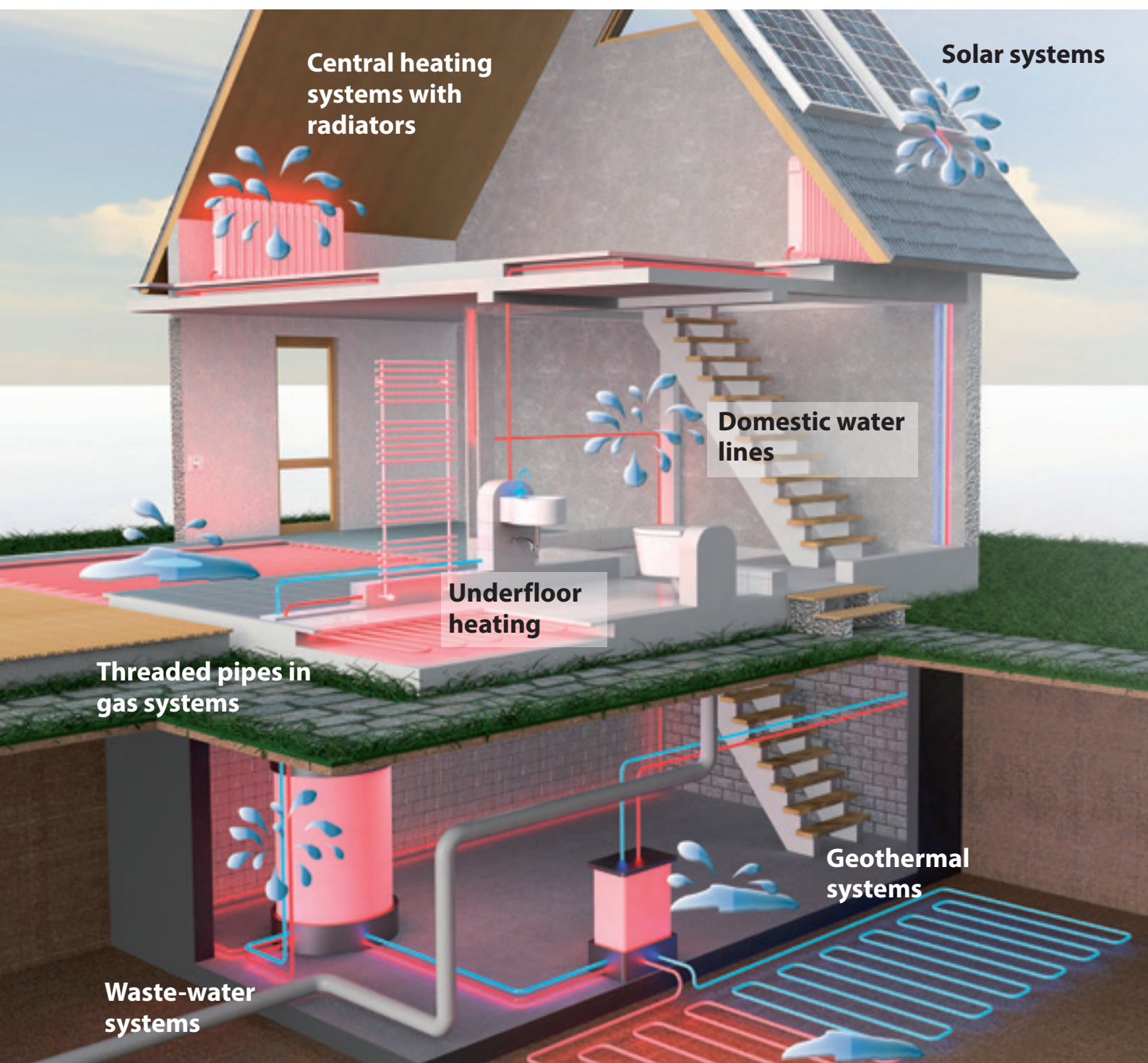






In 1979, the company's founder Wilhelm Klieboldt was working as a plumber specialised in water treatment. His long-standing acquaintance with the plumbing business gave him the idea of providing a liquid silicate heat sealant as a service. After successfully testing the right composition and a thorough testing phase, the way was open to using this innovation in the plumbing sector...

Today, more than 35 years later, there is a special Multiseal sealant available for every leak



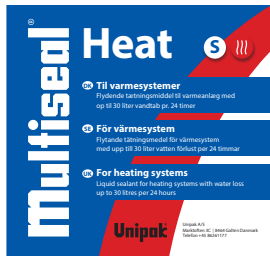
Good reasons for choosing **Multiseal®** products:

- Made in Germany
- Many years of expertise
- In the market since 1979
- Full product range
- Multiseal® seals pipes made of all commonly used pipe materials
- Qualified service team
- Training on our premises and on site
- ISO 9001 certified

Unipak®

*Manufacturer of eco-friendly
sealants and corrosion inhibitors*

SEALING SYSTEMS FOR HEATING



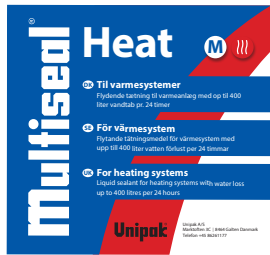
For heating systems losing from 0 to 30 litres of water per 24 hours

Multiseal® Heat S

p. 12

Eliminates water loss in heating systems, boilers, pipelines, radiators, underfloor heating systems, etc., losing **up to 30 litres of water per 24 hours**, and it seals all commonly available pipe materials (plastics and metals).

| Mixing ratio | Packaging sizes |
|---|-------------------------|
| 1.5 litres to 100 litres of heating water | 2.5 litres 5.0 litres |



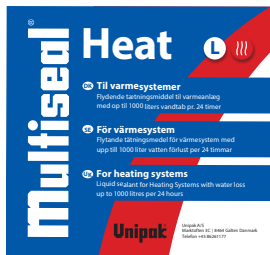
For heating systems losing from 30 to 400 litres of water per 24 hours

Multiseal® Heat M

p. 13

Eliminates water loss in heating systems, boilers, pipelines, radiators, underfloor heating systems, etc., losing **up to 400 litres of water per 24 hours**, and it seals all commonly available pipe materials (plastics and metals).

| Mixing ratio | Packaging sizes |
|---|---------------------------------------|
| 1.5 litres to 100 litres of heating water | 2.5 litres 5.0 litres 10.0 litres |



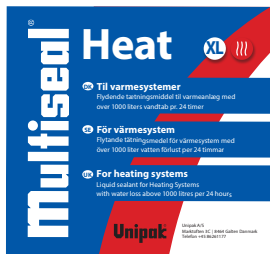
For heating systems losing from 400 to 1000 litres of water per 24 hours

Multiseal® Heat L

p. 14

Eliminates water loss in heating systems, boilers, systems, pipe networks, etc., losing **up to 1000 litres of water per 24 hours** and seals all commonly available pipe materials (plastics and metals).

| Mixing ratio | Packaging sizes |
|---|---------------------------------------|
| 1.5 litres to 100 litres of heating water | 2.5 litres 5.0 litres 10.0 litres |



For heating systems losing more than 1000 litres of water per 24 hours

Multiseal® Heat XL

p. 15

Eliminates extreme water loss in boilers, systems, pipe networks, etc., losing **more than 1000 litres of water per 24 hours** and seals all commonly available pipe materials (plastics and metals).

| Mixing ratio | Packaging sizes |
|---|---------------------------------------|
| 1.5 litres to 100 litres of heating water | 2.5 litres 5.0 litres 10.0 litres |



For heating systems with press fittings losing up to 30 litres of water per 24 hours

Multiseal® Heat 30 E

p. 16

Eliminates water loss of **up to 30 litres per 24 hours** in heating systems that are operated with oil or gas-fired boilers, gas heaters or condensing boilers. Multiseal Heat 30 E must be used in systems with press fittings. Multiseal Heat 30 E forms an elastic seal of the leakage.

| Mixing ratio | Packaging sizes |
|---|--------------------------------------|
| 1.0 litres to 100 litres of heating water | 1.0 litres 2.5 litres 5.0 litres |



For heating systems with antifreeze/brine losing up to 20 litres of water per 24 hours

Multiseal® Heat F

p. 17

Eliminates water loss of **up to 20 litres per 24 hours** in heating systems, pipelines, radiators, and underfloor heating systems filled with antifreeze or brine. Can also be used in geothermal and solar systems. Multiseal Heat F forms an elastic seal of the leakage.

| Mixing ratio | Packaging sizes |
|---|--------------------------------------|
| 1.0 litres to 100 litres of heating water | 1.0 litres 2.5 litres 5.0 litres |

SEALING SYSTEMS FOR DOMESTIC WATER PIPES



For domestic and drinking water systems losing from 0 to 10 litres of water per 24 hours

Multiseal® Water S

p. 18

Eliminates water loss in domestic and drinking water pipes **of up to 10 litres per 24 hours**. Especially suitable for pitting in copper pipes or small leaks in other materials.

| Mixing ratio | Packaging sizes |
|------------------|--------------------------|
| Undiluted or 1:1 | 5.0 litres 10.0 litres |



For domestic and drinking water systems with pitting, that are losing from 10 to 25 litres of water per 24 hours

Multiseal® Water M

p. 19

Eliminates water loss in domestic and drinking water pipes **of up to 25 litres per 24 hours**. Suitable for sealing pitting, cracks and leaks in copper, stainless steel, plastic and galvanised pipes.

| Mixing ratio | Packaging sizes |
|------------------|--------------------------|
| Undiluted or 1:1 | 5.0 litres 10.0 litres |



For domestic and drinking water systems losing 25 to 400 litres of water per 24 hours

Multiseal® Water L

p. 20

Eliminates water loss in domestic and drinking water pipes **of up to 400 litres per 24 hours**. Suitable for sealing cracks and leaks in copper, stainless steel, plastic and galvanised pipes.

| Mixing ratio | Packaging sizes |
|------------------|--------------------------|
| Undiluted or 1:1 | 5.0 litres 10.0 litres |

SEALING SYSTEM FOR SWIMMING POOLS



Liquid sealant for swimming pools

Multiseal® Pool

p. 21

Eliminates leaks in swimming pools. Multiseal Pool seals concrete pools and segment pools and other hard-walled pools. It does not change the appearance of the swimming pool.

| Mixing ratio | Packaging sizes |
|---|--------------------------|
| 1 litre to 1000 litres of swimming-pool water | 5.0 litres 10.0 litres |

SEALING SYSTEM FOR INDOOR WASTE-WATER PIPES



Liquid sealant for indoor waste-water pipes

Multiseal® Drain

p. 22

Eliminates water loss in internal drains. Multiseal Drain can be used with all commonly used pipe materials (plastics, castings, clay, concrete, lead). Can seal leaks on the pipe itself or in joints.

| Mixing ratio | Packaging sizes |
|------------------------------------|--------------------------|
| 1 litre for max. 5 litres of water | 5.0 litres 10.0 litres |

SEALING SYSTEM FOR SEWERS



Liquid sealant for underground conduits (sewers) (two-component system)

Multiseal® Sewer

p. 23

A two-component system for eliminating water loss in sewer pipes (must be used with Multiseal HC 60/reaction accelerator). Multiseal Sewer and Multiseal HC 60/reaction accelerator can be used with all commonly available materials for sewer pipes (plastic, cast, clay, concrete, lead).

| Mixing ratio | Packaging sizes |
|--------------|-----------------|
| Undiluted | 10.0 litres |



Reaction accelerator for Multiseal Sewer (two-component system)

Multiseal® HC 60 reaction accelerator

p. 24

(Must only be used with Multiseal Sewer).

| Mixing ratio | Packaging sizes |
|--------------|-----------------|
| Undiluted | 10.0 litres |

ANTI-CORROSION SYSTEM



Anti-corrosion for heating systems

Multiseal® K 32

p. 25

Protects underfloor heating pipes (especially plastic, but also steel, aluminium and copper) against corrosion by forming a protective film. Prevents oxygen diffusion.

| Mixing ratio | Packaging sizes |
|--------------|-------------------------|
| 1:100 | 2.5 litres 5.0 litres |

FROST-PROOFING SYSTEM



Frost-proofing and corrosion-protection for all systems

Multiseal® FS

p. 26

Protects heating and cooling systems against damage caused by frost, rust and corrosion. Is also suitable for use in heat-pumps and underfloor heating systems. Protects heating systems from freezing.

| Mixing ratio | Packaging sizes |
|--|--|
| depending on the degree of protection required | 5.0 litres 10.0 litres 30.0 litres |

CLEANING SYSTEMS



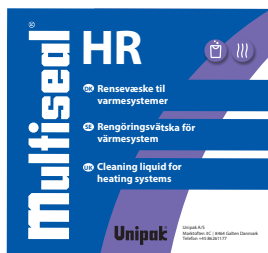
Cleaning agent for solar systems

Multiseal® SOR

p. 27

Removes contamination from solar systems, caused by thermal overloading of the heat transfer fluid in vacuum tubes and conventional solar collectors.

| Mixing ratio | Packaging sizes |
|--------------|-----------------|
| Undiluted | 10.0 litres |



Heating cleaner for all heating systems (lime scale, rust, sediments)

Multiseal® HR

p. 28

Removes lime scale, rust and sludge deposits from heating systems and increases system performance. Multiseal HR is used to clean old heating systems and systems being modernised. Multiseal HR is suitable for all commonly available materials for heating pipes (plastics and metals).

| Mixing ratio | Packaging sizes |
|--------------|-----------------|
| 1:100 | 5.0 litres |



Cleaner for drinking-water pipes (lime scale, rust)

Multiseal® R 13

p. 29

For removing lime scale, rust and boiler scale in water systems. Multiseal R 13 is suitable for most materials such as steel, copper, brass and galvanised pipes.

| Mixing ratio | Packaging sizes |
|---|-----------------|
| Undiluted or a max. 1–2 litres of water | 5.0 litres |



Neutralization liquid for Multiseal R 13

Multiseal® Neutralizer

p. 30

Neutralizes pipelines after they have been descaled with Multiseal R 13.

| Mixing ratio | Packaging sizes |
|--------------|-----------------|
| 1:100 | 5.0 litres |



Quick-Sealer for heating systems also with gas boilers.

Multiseal® QS Micro

p. 32

Suitable for water loss up to 0.5 liters / hour = 10 liters / day
 QS Micro seals leaks in heating systems and pipes in just 3 days.

| Mixing ratio | Packaging sizes |
|--------------|-----------------|
| 1:200 | 1.0 liter |



Quick-Sealer for heating systems.

Multiseal® QS Normal

p. 33

Suitable for water loss up to 8 liters/hour = 200 liters/day.
May not be used in gas boilers!

| Mixing ratio | Packaging sizes |
|--------------|-----------------|
| 1:200 | 1.0 liter |



Quick-Sealer for heating systems

Multiseal® QS Super

p. 34

Suitable for water loss up to 20 liters/hour = 500 liters/day
May not be used in gas boilers!

| Mixing ratio | Packaging sizes |
|--------------|-----------------|
| 1:200 | 1.0 liter |



Quick-Sealer for boilers

Multiseal® QS Boiler

p. 35

Suitable for water loss up to 35 liters/hour = 800 liters/day
May not be used in gas boilers.

| Mixing ratio | Packaging sizes |
|--------------|-----------------|
| 1:200 | 1.0 liter |



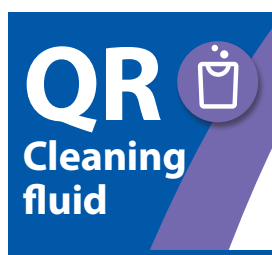
Concentrated corrosion protection for heating systems

Multiseal® QK Corrosion

p. 36

Protects heating systems with pipes and components of steel, aluminum, and copper against corrosion.

| Mixing ratio | Packaging sizes |
|--------------|-----------------|
| 1:200 | 1.0 liter |



Concentrated Cleaning fluid for heating systems

Multiseal® QR Cleaning fluid

Side 37

Removes limescale, rust and sludge deposits from pipe systems and increases system efficiency and thus reduces energy consumption.

| Mixing ratio | Packaging sizes |
|--------------|-----------------|
| 1:200 | 1.0 liter |

SYSTEM ACCESSORIES



Multiseal® Test

p. 38

For measuring Multiseal K 32 (measures the molybdate content in heating water/ efficiency of Multiseal K32).



Multiseal® G 20 filling pump

p. 38

Pump for adding Multiseal products to closed water circuits directly from the disposable 5-litre or 10-litre container.



Multiseal® G 21 J pressure container (with compressor connection)

p. 38

Stainless steel container for filling all Multiseal products; includes pressure gauge for reading container pressure.

Filling funnel for rapid, drip-free filling.

Fill volume 10 litres | pressure: max. 6 bar



Multiseal® cleaning balls, range

p. 39

20 mm (1/2") to 200 mm to remove residual sealing product from the gas system

Multiseal® cleaning ball, set

(10 balls, 2 of each size: 20, 25, 30, 35 and 40 mm) - to remove residual sealing product from the gas system



Multiseal® shut-off bladders

p. 39

Fast, reliable shut-off for waste water and sewer pipes



Multiseal® test plug

p. 39

RTS 35 mm to RTS 100 mm

For the secure closing of pipes



Multiseal® drip pan

p. 39

For Multiseal® Packet 2 (membrane pump), Multiseal G 20 or Multiseal G 21 J drip pan for collecting Multiseal sealants

GAS SEALING SYSTEM



Liquid sealant for sealing threaded joints with hemp in gas systems

Multiseal® Gas

p. 40-43

Tætningsmiddel til efterfølgende tætning af gevindsamlinger i indendørs gassystemer. (Produktet er ikke godkendt i Danmark)

DIN DVGW: NG-5153BL0184

ÖVGW: G 2.662

SVGW: 15-027-7

| Blandingsforhold | Emballagestørrelser |
|------------------|---------------------|
| Rent | 10,0 liter |

SYSTEM ACCESSORIES (FOR Multiseal® GAS)



Complete gas kit

p. 44-45

Comprising packets 1-5



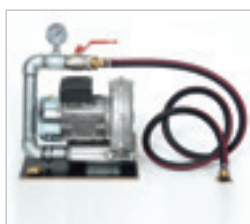
Packet 1

Filling container, complete



Packet 2

Membrane pump, complete



Packet 3

Drying fan



Packet 4

Ventilation buckets, 4



Packet 5

Transport box



Multiseal® Heizboy

p. 45

Heater unit for special applications. (Price available on request)

APPLICATION TRAINING



Gas training session or training and instruction at work site

p. 53

Gas training session or training and instruction by a technician for the application of Multiseal equipment on your premises or at Unipak A/S in Galten, Denmark. (Price available on request)



For heating systems losing 0 to 30 litres of water per 24 hours

Multiseal® Heat S

Multiseal® Heat S eliminates water loss in heating systems, boilers, pipelines, radiators and underfloor heating systems losing up to 30 litres of water per 24 hours.

Patent No. 4321629

| Packaging | Art. No. | EAN |
|------------|----------|---------------|
| 2,5 liters | 8010025 | 5708923800008 |
| 5 liters | 8010050 | 5708923800015 |

Multiseal® Heat S seals all commonly used pipe materials (plastics and metals). Multiseal Heat S crystallises when it comes in contact with air to mechanically seal the leak. A leak sealed with Multiseal Heat S is durable and resists ageing. Multiseal Heat S can also be used in open systems. Multiseal Heat S is introduced into the boiler using a filling pump (Multiseal G 20 or Multiseal G 21 J). The cured seal can withstand temperatures up to 1200 °C and 15 bar pressure.

NOTE!

The heating system must be free from additives such as antifreeze, corrosion inhibitors and brine. **Use Multiseal Heat 30 E if a gas**

boiler or condensing unit is connected to the system. If used properly, Multiseal Heat S will not damage pumps or control valves.

Before using the product, we recommend flushing the system thoroughly to remove deposits and impurities.

ATTENTION!

New heating systems have only low water content (if necessary, measure the water content manually).

Control option: If dosed correctly, the pH value is between 10.5 and 11. Not soluble with other chemicals (temperature and pressure resistant).

USER INSTRUCTIONS:

Leaky boiler:

Disconnect the heating system from the boiler and bring the boiler up to operating temperature. Set the maximum temperature using the control button. Thoroughly shake the Multiseal Heat S canister. Pump the required amount (see table, pp 39–41) through the boiler fill and drain valve. Fill the boiler until it reaches a pressure of 1 bar. Purge the circulation pump thoroughly through the control bolt. Keep the boiler in operation as described above for 4 hours. After sealing, empty the boiler and thoroughly flush it with water. Refill the boiler with clean water and put the system back into operation after thoroughly purging the circulation pump one more time.

Leaky heating system:

Fill the heating system with water and purge it. Set the maximum temperature using the boiler thermostat. Fully open all mixer and heater valves. Purge circulation pumps and leave running. Reduce the amount of heating water by twice the required quantity of Multiseal Heat S that has to be added to the system. **Thoroughly shake the Multiseal Heat S canister before use.** The required amount is now diluted 1:1 with water. Add this mixture to the system using the boiler fill and drain valve. Fill the heating system to operating pressure. Thoroughly purge the circulation pumps again via the control bolt. Keep the heating system in operation for 7 hours under the conditions above, without lowering the circulation or temperature. The actual sealing process takes place in the course of one or more days. We recommend leaving Multiseal Heat S in the system for about 72 hours. The pH value must be kept at between 10.5 and 11.0. After sealing, completely empty the system and flush thoroughly with clean water and refill to normal operating pressure. Thoroughly purge the circulation pump one more time.

If the system includes a modern high-performing boiler, or a boiler that is less than 5 years old, we recommend bypassing the boiler using an external circulation pump with heater. Here, too, thoroughly flush Multiseal Heat S out of the system after 72 hours. If you can isolate the leak of the unit to a single circuit, it is advisable to follow the description for sealing systems with district heating.

For district heating systems:

If a heating system runs on district heating, it is necessary to determine in which section of the system the leak is located inside the house. Establish a closed circulation through the part (circuit) in which the leak has been found using an external circulation pump with built-in heating and add the correct concentration of Multiseal Heat S (pH 10.5–11.0, see mixing ratio below). Thoroughly shake the Multiseal canister before mixing the product into the system water.

Heat up the circulating Multiseal mixture as this will speed up the sealing procedure. After this, maintain circulation (with heating) through the circuit section with the leak under the described conditions until the leak is sealed, usually for 2–3 days. After sealing, rinse the heating circuit thoroughly with several changes of water; refill the circuit with water and reconnect the circuit to the district heating system. The equipment used for the sealing procedure – especially the external circulation pump – must also be rinsed thoroughly with several changes of water.

Remove Multiseal Heat S immediately from objects (tiles, sinks, etc.) with water; otherwise it will crystallise and cannot be removed.

Observe the usual precautions when handling chemicals! Keep out of reach of children!

Disposal: see safety data sheet.

Mixing ratio: 1.5 litres to 100 litres of heating water.

Control option: If dosed correctly, the pH value is between 10.5 and 11. Not soluble with other chemicals (temperature and pressure resistant).

Suitability for storage: 5 years from the date of manufacture, keep frost-free.

Our information corresponds with our current experiences.

We reserve the right to make technical changes.

Safety data sheets can be downloaded on www.unipak.dk

INFORMATION

| | |
|--|-----------|
| · Technical Data Sheet No. 2 | p. 38 |
| · Calculation table | pp. 40–42 |
| · Data Sheet No. 6 (sealing of separate circuit) | p. 39 |



For heating systems losing 30 to 400 litres of water per 24 hours

Multiseal® Heat M

Multiseal® Special eliminates water loss in heating systems, boilers, pipelines, radiators and underfloor heating systems that are losing up to 400 litres of water per 24 hours.

Patent No. 4321629

| Packaging | Art. No. | EAN |
|------------|----------|---------------|
| 2,5 liters | 8011025 | 5708923800022 |
| 5 liters | 8011050 | 5708923800039 |
| 10 liters | 8011100 | 5708923800046 |

Multiseal® Heat M seals all commercial materials (plastics and metals). Multiseal Heat M crystallises when it comes in contact with air to mechanically seal the leak. Multiseal Heat M sealing is durable and resists ageing. Multiseal Heat M can also be used in open systems. Multiseal Heat M is added to the boiler using a filling pump (Multiseal G 20 or Multiseal G 21J). The cured seal can withstand temperatures up to 1200 °C and 15 bar pressure.

NOTE!

The heating system must be free from additives such as antifreeze, corrosion inhibitors and brine. **Use Multiseal Heat 30 E if a gas boiler or condensing unit is connected to the system.** If used

properly, Multiseal Heat M will not damage pumps or control valves.

Before using the product, we recommend flushing the system thoroughly to remove deposits and impurities.

ATTENTION!

New heating systems have only low water content (if necessary, measure the water content manually).

Control option: If dosed correctly, the pH value is between 10.5 and 11. Not soluble with other chemicals (temperature and pressure resistant).

USER INSTRUCTIONS:

Leaky boiler:

Disconnect the heating system from the boiler and bring the boiler up to operating temperature. Set the maximum temperature using the control button. Thoroughly shake the Multiseal Heat M canister. Pump the required amount (see table, pp 39–41) through the boiler fill and drain valve. Fill the boiler until it reaches a pressure of 1 bar. Purge the circulation pump thoroughly through the control bolt. Keep the boiler in operation as described above for 4 hours. After sealing, empty the boiler and thoroughly flush it with water. Refill the boiler with clean water and put the system back into operation after thoroughly purging the circulation pump one more time.

Leaky heating system:

Fill the heating system with water and purge it. Set the maximum temperature using the boiler thermostat. Fully open all mixer and heater valves. Purge circulation pumps and leave running. Reduce the volume of heating water by twice the required quantity of Multiseal Heat M to be added to the system. **Thoroughly shake the Multiseal Heat M canister before use.** The required amount is now diluted 1:1 with water. Add this mixture to the system using the boiler fill and drain valve. Fill the heating system to operating pressure. Thoroughly purge the circulation pumps again via the control bolt. Keep the heating system in operation for 7 hours under the conditions above, without lowering the circulation or temperature. The actual sealing process takes place in the course of one or more days. We recommend leaving Multiseal Heat M in the system for about 72 hours. The pH value must be kept at between 10.5 and 11.0. After sealing, completely empty the system and flush thoroughly with clean water and refill to normal operating pressure. Thoroughly purge the circulation pump one more time. If the system includes a modern high-performing boiler, or a boiler that is less than 5 years old, we recommend bypassing the boiler using an external circulation pump with heater. Here, too, Multiseal Heat M must be flushed out of the system after 72 hours. If you can isolate the leak of the unit to a single circuit, it is advisable to follow the description for sealing systems with district heating.

For district heating systems:

If a heating system runs on district heating, it is necessary to determine in which section of the system the leak is located inside the house. Establish a closed circulation through the part (circuit) in which the leak has been found using an external circulation pump with built-in heating and add the correct concentration of Multiseal Heat M (pH 10.5–11.0, see mixing ratio below). Thoroughly shake the Multiseal canister before mixing the product into the system water.

Heat up the circulating Multiseal mixture as this will speed up the sealing procedure. After this, maintain circulation (with heating) through the circuit section with the leak under the described conditions until the leak is sealed, usually for 2–3 days. After sealing, rinse the heating circuit thoroughly with several changes of water; refill the circuit with water and reconnect the circuit to the district heating system. The equipment used for the sealing procedure – especially the external circulation pump – must also be rinsed thoroughly with several changes of water.

Remove Multiseal Heat M immediately from objects (tiles, sinks, etc.) with water; otherwise it will crystallise and cannot be removed.

Observe the usual precautions when handling chemicals! Keep out of reach of children!

Disposal: see safety data sheet.

Mixing ratio: 1.5 litres to 100 litres of heating water.

Control option: If dosed correctly, the pH value is between 10.5 and 11. Not soluble with other chemicals (temperature and pressure resistant).

Suitability for storage: 5 years from the date of manufacture, keep frost-free.

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|--|-----------|
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| • Calculation table | pp. 40–42 |
| • Data Sheet No. 6 (sealing of separate circuit) | p. 39 |



For heating systems losing between 400 and 1000 litres of water per 24 hours

Multiseal® Heat L

Multiseal® Heat L eliminates extreme water loss in boilers, pipelines and heating systems losing between 400 and 1000 litres of water per 24 hours.

Patent No. 4321629

| Packaging | Art. No. | EAN |
|------------|----------|---------------|
| 2,5 liters | 8012025 | 5708923800053 |
| 5 liters | 8012050 | 5708923800060 |
| 10 liters | 8012100 | 5708923800077 |

Multiseal® Heat L seals all commonly used pipe materials (plastics and metals). Multiseal Heat L crystallises when it comes in contact with air to mechanically seal the leak. A leak sealed with Multiseal Heat L is durable and resists ageing. Multiseal Heat L can also be used in open systems. Multiseal Heat L is introduced into the boiler using a filling pump (Multiseal G 20 or Multiseal G 21 J). When Multiseal Heat L is used, clogging can occur (in thermostatic valves, dirt traps). The cured seal can withstand temperatures up to 1200 °C and 15 bar pressure.

NOTE!

The heating system must be free from additives such as antifreeze,

corrosion inhibitors and brine. **Use Multiseal Heat 30 E if a gas boiler or condensing unit is connected to the system.** If used properly, Multiseal Heat L will not damage pumps or control valves. Before using the product, we recommend flushing the system thoroughly to remove deposits and impurities.

ATTENTION!

New heating systems have only low water content (if necessary, measure the water content manually).

Control option: If dosed correctly, the pH value is between 10.5 and 11. Not soluble with other chemicals (temperature and pressure resistant).

USER INSTRUCTIONS:

Leaky boiler:

Disconnect the heating system from the boiler and bring the boiler up to operating temperature. Set the maximum temperature using the control button. Thoroughly shake the Multiseal Heat L canister. Pump the required amount (see table, pp 39–41) through the boiler fill and drain valve. Fill the boiler until it reaches a pressure of 1 bar. Purge the circulation pump thoroughly through the control bolt. Keep the boiler in operation as described above for 4 hours. After sealing, empty the boiler and thoroughly flush it with water. Refill the boiler with clean water and put the system back into operation after thoroughly purging the circulation pump one more time.

Leaky heating system:

Remove or bypass strainers, dirt traps, filters and heat gauges. Fill the heating system with water and purge it. Set the maximum temperature using the boiler thermostat. Fully open all mixer and heater valves. Purge circulation pumps and leave running. Reduce the amount of heating water by twice the required volume of Multiseal Heat L that must be added to the system. **Thoroughly shake the Multiseal Heat L canister before use.** The required amount is now diluted 1:1 with water. Add this mixture to the system using the boiler fill and drain valve. Fill the heating system to operating pressure. Thoroughly purge the circulation pumps again via the control bolt. Keep the heating system in operation for 7 hours under the conditions above, without lowering the circulation or temperature. The actual sealing process takes place in the course of one or more days. We recommend leaving Multiseal Heat L in the system for about 72 hours. The pH value must be 10.5–11.0. After sealing, empty the system, rinse and refill with water. If the system includes a modern high-performing boiler, or a boiler that is less than 5 years old, we recommend bypassing the boiler using an external circulation pump with heater. In this case, flush Multiseal Heat L out of the system after 72 hours. If you can isolate the leak of the unit to a single circuit, it is advisable to follow the description for sealing systems with district heating.

For district heating systems:

If a heating system runs on district heating, it is necessary to determine in which section of the system the leak is located inside the house. Establish a closed circulation through the part (circuit) in which the leak has been found using an external circulation pump with built-in heating and add the correct concentration of Multiseal Heat L (pH 10.5–11.0, see mixing ratio below). Thoroughly shake the Multiseal canister before mixing the product into the system water. Heat up the circulating Multiseal mixture as this will speed up the sealing procedure. After this, maintain circulation (with heating) through the circuit section with the leak under the described conditions until the leak is sealed, usually for 2–3 days. After sealing, rinse the heating circuit thoroughly with several changes of water; refill the circuit with water and reconnect the circuit to the district heating system. The equipment used for the sealing procedure – especially the external circulation pump – must also be rinsed thoroughly with several changes of water.

Remove Multiseal Heat L immediately from objects (tiles, sinks, etc.) with water; otherwise it will crystallise and cannot be removed.

Observe the usual precautions when handling chemicals! Keep out of reach of children!

Disposal: see safety data sheet.

For further details, please refer to our safety data sheets.

Mixing ratio: 1.5 litres to 100 litres of heating system water.

Control option: If dosed correctly, the pH value is between 10.5 and 11. Not soluble with other chemicals (temperature and pressure resistant).

Suitability for storage: 5 years from the date of manufacture, keep frost-free.

Our information corresponds with our current experiences.

We reserve the right to make technical changes.

Safety data sheets can be downloaded on www.unipak.dk

INFORMATION

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| • Technical Data Sheet No. 2 | p. 38 |
| • Calculation table | pp. 40–42 |
| • Data Sheet No. 6 (sealing of separate circuit) | p. 39 |



For heating systems losing more than 1000 litres of water per 24 hours

Multiseal® Heat XL

Multiseal® Heat XL eliminates extreme water loss in boilers, pipelines and heating systems losing more than 1000 litres of water per 24 hours.

Patent No. 4321629

| Packaging | Art. No. | EAN |
|------------|----------|---------------|
| 2,5 liters | 8013025 | 5708923800084 |
| 5 liters | 8013050 | 5708923800091 |
| 10 liters | 8013100 | 5708923800107 |

Multiseal® Heat XL seals all commonly used pipe materials (plastics and metals). Multiseal Heat XL crystallises when it comes in contact with air to mechanically seal the leak. A leak sealed with Multiseal Heat XL is durable and resists ageing. Multiseal Heat XL can also be used in open systems. Add Multiseal Heat XL to the boiler using a filling pump (Multiseal G 20 or Multiseal G 21 J). When Multiseal Heat XL is used, clogging can occur (in thermostatic valves, dirt traps). The cured seal can withstand temperatures up to 1200 °C and 15 bar pressure.

NOTE!

The heating system must be free from additives such as antifreeze,

corrosion inhibitors and brine. Use Multiseal Heat 30 E if a gas boiler or condensing unit is connected to the system. If used properly, Multiseal Heat XL will not damage pumps or control valves. Before using the product, we recommend flushing the system thoroughly to remove deposits and impurities.

ATTENTION!

New heating systems have only low water content (if necessary, measure the water content manually).

Control option: If dosed correctly, the pH value is between 10.5 and 11. Not soluble with other chemicals (temperature and pressure resistant).

USER INSTRUCTIONS:

Leaky boiler:

Disconnect the heating system from the boiler and bring the boiler up to operating temperature. Set the maximum temperature using the control button. Thoroughly shake the Multiseal Heat XL canister. Pump the required amount (see table, pp 39–41) through the boiler fill and drain valve. Fill the boiler until it reaches a pressure of 1 bar. Purge the circulation pump thoroughly through the control bolt. Keep the boiler in operation as described above for 4 hours. After sealing, empty the boiler and thoroughly flush it with water. Refill the boiler with clean water and put the system back into operation after thoroughly purging the circulation pump one more time.

Leaky heating system:

Remove or bypass strainers, dirt traps, filters and heat gauges. Fill the heating system with water and purge it. Set the maximum temperature using the boiler thermostat. Fully open all mixer and heater valves. Purge circulation pumps and leave running. Reduce the amount of heating water by twice the required quantity Multiseal Heat XL which has to be added to the system. **Thoroughly shake the Multiseal Heat XL canister before use.** The required amount is now diluted 1:1 with water. Add this mixture to the system using the boiler fill and drain valve. Fill the heating system to operating pressure. Thoroughly purge the circulation pumps again via the control bolt. Keep the heating system in operation for 7 hours under the conditions above, without lowering the circulation or temperature. The actual sealing process takes place in the course of one or more days. We recommend leaving Multiseal Heat XL in the system for about 72 hours. The pH value must be 10.5–11.0. After sealing, empty the system, rinse and refill with water. If the system includes a modern high-performing boiler, or a boiler that is less than 5 years old, we recommend bypassing the boiler using an external circulation pump with heater. In this case, flush Multiseal Heat XL out of the system after 72 hours. If you can isolate the leak of the unit to a single circuit, it is advisable to follow the description for sealing systems with district heating.

For district heating systems:

If a heating system runs on district heating, it is necessary to determine in which section of the system the leak is located inside the house. Establish a closed circulation through the part (circuit) in which the leak has been found using an external circulation pump with built-in heating and add the correct concentration of Multiseal Heat XL (pH 10.5–11.0, see mixing ratio below). Thoroughly shake the Multiseal canister before mixing the product into the system water. Heat up the circulating Multiseal mixture as this will speed up the sealing procedure. After this, maintain circulation (with heating) through the circuit section with the leak under the described conditions until the leak is sealed, usually for 2–3 days. After sealing, rinse the heating circuit thoroughly with several changes of water; refill the circuit with water and reconnect the circuit to the district heating system. The equipment used for the sealing procedure – especially the external circulation pump – must also be rinsed thoroughly with several changes of water.

Remove Multiseal Heat XL immediately from objects (tiles, sinks, etc.) with water; otherwise it will crystallise and cannot be removed.

Observe the usual precautions when handling chemicals! Keep out of reach of children!

Disposal: see safety data sheet.

For further details, please refer to our safety data sheets.

Mixing ratio: 1.5 litres to 100 litres of heating system water.

Control option: If dosed correctly, the pH value is between 10.5 and 11. Not soluble with other chemicals (temperature and pressure resistant).

Suitability for storage: 5 years from the date of manufacture, keep frost-free.

Our information corresponds with our current experiences.

We reserve the right to make technical changes.

Safety data sheets can be downloaded on www.unipak.dk

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| · Technical Data Sheet No. 2 | p. 38 |
| · Calculation table | pp. 40–42 |
| · Data Sheet No. 6 (sealing of separate circuit) | p. 39 |



Elastic sealant for Heating Systems with press fittings losing up to 30 litres of water per 24 hours

Multiseal® Heat 30 E

Multiseal® Heat 30 E eliminates water loss of up to 30 litres per 24 hours in heating systems that are operated with oil, gas boilers, gas heaters or condensing boilers. Multiseal Heat 30 E must be used in systems with press fittings.

| Packaging | Art. No. | EAN |
|------------|----------|---------------|
| 1 liters | 8015010 | 5708923800145 |
| 2,5 liters | 8015025 | 5708923800152 |
| 5 liters | 8015050 | 5708923800169 |

Multiseal® Heat 30 E seals all commonly used pipe materials (plastics, metals, press fittings, underfloor heating systems). Multiseal Heat 30 E forms an elastic seal of the leakage. Eliminates water loss of up to 30 litres per 24 hours. Multiseal Heat 30 E must remain in the system (long-term effect)! The sealed leak is durable and resists ageing. The cured seal can withstand temperatures up to 150 °C and 5 bar pressure. Multiseal Heat 30 E is introduced into the heating circuit using a filling pump (Multiseal G 20 or Multiseal G 21J).

NOTE!

If used properly, Multiseal Heat 30 E will not damage pumps or control valves. For leaks in combustion chambers, please use Multiseal 24, Multiseal Special or Multiseal Heat L.

Before using the product, we recommend flushing the system thoroughly to remove deposits and impurities.

USER INSTRUCTIONS:

Leaky heating system:

Fully open all mixer and heater valves. Purge circulation pumps and leave running. Tap the volume of water equal to twice the quantity of Multiseal Heat 30 E to be added to the system. Thoroughly shake the Multiseal Heat 30 E canister. The required amount is now diluted 1:1 with water. Add it to the system via the boiler filling and drain valve. Empty and rinse the canister so that the residual product is used. The heating system must remain operational for 7 hours, with full circulation and heating on. The actual sealing process takes one or more days depending on the nature of the leak.

Keep Multiseal Heat 30 E permanently in the system and maintain a constant minimum circulation of system water. If there is a modern condensing boiler connected to the system that still has factory warranty, we recommend a system separation by means of an extra heat exchanger before filling Multiseal Heat 30 E into the system water.

Observe the usual precautions when handling chemicals.

Keep out of reach of children!

Disposal: see safety data sheet.

Mixing ratio: 1 litre Multiseal Heat 30 E to 100 litres of heating water.

An inadequate dose reduces the product's effectiveness.

Suitability for storage: 5 years from the date of manufacture, protect against frost.

Our information corresponds with our current experiences.

We reserve the right to make technical changes.

Safety data sheets can be downloaded on www.unipak.dk

INFORMATION

· Calculation table pp. 40–42



Elastic sealant for heating systems with antifreeze/brine losing up to 20 litres of water per 24 hours

Multiseal® Heat F

Multiseal® Heat F liquid sealant eliminates water loss of up to 20 litres per 24 hours in heating systems, pipelines, radiators and underfloor heating systems filled with antifreeze liquid or brine. Can also be used in geothermal collectors and solar systems. Multiseal Heat F forms an elastic seal at the leak.

| Packaging | Art. No. | EAN |
|------------|----------|---------------|
| 1 liters | 8016010 | 5708923800176 |
| 2,5 liters | 8016025 | 5708923800183 |
| 5 liters | 8016050 | 5708923800190 |

Multiseal® Heat F seals all commonly used pipe materials (plastics, metals, press fittings, underfloor heating systems). Can also be used in geothermal and solar systems. Multiseal Heat F forms an elastic seal at the leak point. Eliminates water loss of up to 20 litres per 24 hours. Can be used in systems filled with antifreeze.

Multiseal Heat F seals permanently and resists ageing. Multiseal Heat F can be used with solar collectors and geothermal collectors. Add Multiseal Heat F to the heating circuit using a filling pump (Multiseal G 20 or Multiseal G 21J).

Multiseal Heat F must remain in the system!

The cured seal can withstand temperatures up to 150 °C and 5 bar pressure.

NOTE!

If used properly, Multiseal Heat F will not damage pumps or control valves.

Before using the product, we recommend flushing the system thoroughly to remove deposits and impurities.

USER INSTRUCTIONS:

Leaky heating system:

Fill the heating system with water and purge it. Fully open all mixer and heater valves. Purge circulation pumps and leave running. Tap the volume of system water equal to the required quantity Multiseal Heat F to be added. Thoroughly shake the Multiseal Heat F canister. Add the required diluted quantity Multiseal Heat F (see table) using the boiler fill and drain valve. Empty and rinse the canister so that the residual product is used. Purge the circulation pumps again well via the control screw. The heating system must remain operational for 7 hours with full circulation and heating on. The actual sealing process takes one or more days depending on the nature of the leak. Keep Multiseal Heat F permanently in the system and maintain a constant minimum circulation of system water. If there is a modern condensing boiler connected to the system that still has factory warranty, we recommend a system separation by means of an extra heat exchanger before filling Multiseal Heat F into the system water.

Other systems, e.g. geothermal collectors:

It is important that the product, Multiseal Heat F, is pre-mixed with water or brine and introduced into the system after the heat exchanger. The product can then be diluted and mixed into the system and it is thus not pumped concentrated or undiluted through the heat exchanger.

Multiseal Heat F for leaking solar and geothermal collectors:

Pre-mix Multiseal Heat F with system water containing glycol/brine in the above-mentioned systems. Take 5-10 L of system water with antifreeze liquid, then mix Multiseal Heat F until no residue is left in the Multiseal Heat F canister. Thoroughly stir the Multiseal and system water mixture. Then add the mixture to the

return pipe (after the heat exchanger). The circulation pump must then run for 2 hours. Bring the system to normal operating pressure and normal operating temperature. No temperature increase is required. The sealing process can take 2 or 3 days.

Keep Multiseal Heat F in the system and maintain a constant minimum circulation of system water.

Observe the usual precautions when handling chemicals.

Keep out of reach of children!

Disposal: see safety data sheet.

Mixing ratio: 1 litre Multiseal Heat F to 100 litres of heating water.

An inadequate dose reduces the product's effectiveness.

Suitability for storage: 5 years from the date of manufacture, protect against frost.

Our information corresponds with our current experiences.

We reserve the right to make technical changes.

Safety data sheets can be downloaded on www.unipak.dk

INFORMATION

· Calculation table pp. 40-42



Liquid sealant for domestic and drinking water systems, with pitting, that are losing 0 to 10 litres of water per 24 hours

Multiseal® Water S

Multiseal® Water S liquid sealant eliminates water loss in domestic and drinking water pipes losing up to 10 litres of water daily. Especially suitable for pitting in copper pipes or small leaks in other materials. Multiseal Water S crystallises when it comes in contact with air. The leak is mechanically sealed. A leak sealed with Multiseal Water S is durable and resists ageing.

Patent-No. 4342861

| Packaging | Art. No. | EAN |
|-----------|----------|---------------|
| 5 liters | 8017050 | 5708923800206 |
| 10 liters | 8017100 | 5708923800213 |

IMPORTANT!

The sealants Multiseal Water S, Multiseal Water M, Multiseal Water L may be used in the food area (= drinking water).

ATTENTION!

Multiseal Water S is not soluble with other chemicals. Temperature-resistant and pressure-resistant.

USER INSTRUCTIONS:

Disconnect and drain the leaking domestic water pipe. Collect and measure the contents to determine how much Multiseal Water S is needed to fill the pipe. Close valves and fittings, remove if necessary. It may also be necessary to build in shut-off valves. Aerators, sieves, filters and water meters must be removed (install fitting pieces).

Blow out the leaking pipe with compressed air. Close the end of the domestic water pipe so that the air emerges at the leak point and blows the leak point water-free. Thoroughly shake the Multiseal Water S canister. Add the required volume of Multiseal Water S, undiluted or diluted, 1:1 with water to the drinking-water pipe with a filling pump (without suction strainer) or using the pressure tank Multiseal G 21J. Purge the domestic water pipe well. Pressurise the domestic water pipe (5–7 bar). Multiseal Water S must exit at the leak so that it can crystallise outside the pipe. Multiseal Water S requires a contact time of at least 2 days (48 hours). In very wet conditions the exposure time has to be extended to 4 to 5 days. Since no air can reach the leak in a plastic-sheathed tube, the extent of sealing that can take place in this case is limited. Blow out Multiseal Water S after sealing and thoroughly rinse the domestic water pipe with pure water. Reconnect the domestic water pipe to the domestic water system. The warm water boiler must be shut off before sealing. Thoroughly flush tools after use.

If possible, you can achieve a faster seal by using a separate circulation pump to set up a closed circuit with heating (heating cartridge 50–60 °C) through the leaking pipe – use Unipak Heizboy. Thoroughly shake the Multiseal canister before use. Add the required amount of undiluted Multiseal to the established circuit. Maintain circulation through the leaking circuit under the conditions described until the leak is sealed. This typically takes one day, but may take up to 6 days in some cases. We recommend leaving the circuit with heating and circulation on for at least 3 days. After sealing, flush the circuit thoroughly with water. Then reconnect the circuit to the system. Thoroughly flush the equipment used for sealing – particularly the circulation pump – with plenty of water.

The product can be re-used if used undiluted.

IMPORTANT!

Remove Multiseal Water S immediately from objects (tiles, sinks, etc.) with water, as otherwise it will crystallise and cannot be removed.

Observe the usual precautions when handling chemicals.

Keep out of reach of children!

Disposal: see safety data sheet.

Mixing ratio: Undiluted or mixed 1:1 with water. Not soluble with other chemicals. Temperature-resistant and pressure-resistant.

Suitability for storage: 5 years from the date of manufacture, keep frost-free.

Our information corresponds with our current experiences. We reserve the right to make technical changes. Safety data sheets can be downloaded on www.unipak.dk

INFORMATION

- Technical Data Sheet No. 3 p. 38
- Calculation table pp. 40–42



Liquid sealant for domestic and drinking water pipes losing 10 to 25 litres of water per 24 hours

Multiseal® Water M

Multiseal® Water M liquid sealant eliminates water loss in domestic and drinking water pipes losing up to 25 litres of water per 24 hours. It is possible to seal pitting, cracks and leaks in copper, stainless steel, plastic and galvanised pipes. Multiseal Water M crystallises when it comes into contact with air. The leak is mechanically sealed.

A leak sealed with Multiseal Water M is durable and resists ageing.

Patent No. 4342861

| Packaging | Art. No. | EAN |
|-----------|----------|---------------|
| 5 liter | 8018050 | 5708923800220 |
| 10 liter | 8018100 | 5708923800237 |

IMPORTANT!

The sealants Multiseal Water S, Multiseal Water M, Multiseal Water L may be used in the food area (= drinking water).

ATTENTION!

Multiseal Water M is not soluble with other chemicals. Temperature-resistant and pressure-resistant.

USER INSTRUCTIONS:

Disconnect and drain the leaking domestic water pipe. Collect and measure the contents to determine how much Multiseal Water M needs to be added to the leaking pipe section. Close valves and fittings, remove if necessary. It may also be necessary to build in shut-off valves. Aerators, sieves, filters and water meters must be removed (install fitting pieces).

Blow out the leaking pipe with compressed air. Close the end of the domestic water pipe so that the air emerges at the leak point and blows the leak point water-free. Thoroughly shake the Multiseal Water M canister. Add the required quantity of Multiseal Water M undiluted or diluted 1:1 with water to the domestic water pipe with a filling pump (without suction strainer) or with the pressure tank Multiseal G 21J. Purge the domestic water pipe well.

Pressurise the domestic water pipe (5–7 bar). Multiseal Water M must exit at the leak so that it can crystallise outside the pipe. Multiseal Water M requires a contact time of at least 2 days (48 hours). In very wet conditions, the exposure time has to be extended to 4 to 5 days. Since no air can reach the leak in a plastic-sheathed tube, the extent of sealing that can take place in this case is limited. Flush out Multiseal Water M after sealing and thoroughly rinse the domestic water pipe with pure water. Reconnect the domestic water pipe to the domestic water system. The hot-water boiler must be shut off and disconnected from the systems before sealing. Thoroughly flush tools after use.

If possible, you can achieve a faster seal by using a separate circulation pump to set up a closed circuit with heating (heating cartridge 50–60 °C) through the leaking pipe – use Unipak Heizboy. Thoroughly shake the Multiseal canister before use. Add the required amount of undiluted Multiseal to the established circuit. Maintain circulation through the leaking circuit under the conditions described until the leak is sealed.

This typically takes one day, but may take up to 6 days in some cases. We recommend leaving the circuit with heating and circulation on for at least 3 days. After sealing, flush the circuit thoroughly

with water. Then reconnect the circuit to the system. Thoroughly flush the equipment used for sealing – particularly the circulation pump – with plenty of water.

Domestic water storage tanks can be sealed if air reaches the leak point from the outside (mixing ratio 1:100). We recommend cleaning the domestic water tank before sealing.

The product can be re-used if used undiluted.

IMPORTANT!

Remove Multiseal Water M immediately from objects (tiles, sinks, etc.) with water; otherwise it will crystallise and cannot be removed.

Observe the usual precautions when handling chemicals. Keep out of reach of children!

Disposal: see safety data sheet.

Mixing ratio: Undiluted or mixed 1:1 with water. Not soluble with other chemicals. Temperature-resistant and pressure-resistant.

Suitability for storage: 5 years from the date of manufacture, keep frost-free.

Our information corresponds with our current experiences. We reserve the right to make technical changes. Safety data sheets can be downloaded on www.unipak.dk

INFORMATION

- Technical Data Sheet No. 3 p. 38
- Calculation table pp. 40–42



Liquid sealant for domestic and drinking water pipes, with pitting, losing 25 to 400 litres of water per 24 hours

Multiseal® Water L

Multiseal® Water L liquid sealant eliminates water loss in domestic and drinking water pipes losing up to 400 litres per 24 hours. Multiseal Water L crystallises when it comes in contact with air. The leak is mechanically sealed. A leak sealed with Multiseal Water L is durable and resists ageing.

Patent-No. 4342861

| Packaging | Art. No. | EAN |
|-----------|----------|---------------|
| 5 liter | 8019050 | 5708923800244 |
| 10 liter | 8019100 | 5708923800251 |

IMPORTANT!

The sealants Multiseal Water S, Multiseal Water M, Multiseal Water L may be used in the food area (= drinking water).

ATTENTION!

Multiseal Water L is not soluble with other chemicals. Temperature-resistant and pressure-resistant.

USER INSTRUCTIONS:

Disconnect and drain the leaking domestic water pipe. Collect and measure the contents to determine how much Multiseal Water L is needed to fill the pipe. Close valves and fittings, remove if necessary. It may also be necessary to build in shut-off valves. Aerators, sieves, filters and water meters must be removed (install fitting pieces).

Blow out the leaking pipe with compressed air. Close the end of the domestic water pipe so that the air emerges at the leak point and blows the leak point water-free. **Thoroughly shake the Multiseal Water L canister.** Add the required quantity of Multiseal Water L undiluted or diluted 1:1 with water to the domestic water pipe with a filling pump (without suction strainer) or with the pressure tank Multiseal G 21J. Purge the domestic water pipe well.

Pressurise the domestic water pipe (5–7 bar). Multiseal Water L must exit at the leakage so that it can crystallise outside the pipe. Multiseal Water L requires a contact time of at least 2 days (48 hours). In very wet conditions, the exposure time has to be extended to 4 to 5 days. Since no air can reach the leak in a plastic-sheathed tube, the extent of sealing that can take place in this case is limited. Blow out Multiseal Water L after sealing and thoroughly rinse the domestic water pipe with pure water. Reconnect the domestic water pipe to the domestic water system. The warm water boiler must be shut off before sealing. Thoroughly flush tools after use.

If possible, you can achieve a faster seal by using a separate circulation pump to set up a closed circuit with heating (heating cartridge 50–60 °C) through the leaking pipe – use Unipak Heizboy. Thoroughly shake the Multiseal canister before use. Add the required amount of undiluted Multiseal to the established circuit. Maintain circulation through the leaking circuit under the conditions described until the leak is sealed. This typically takes one day, but may take up to 6 days in some cases. We recommend leaving the circuit with heating and circulation on for at least 3 days. After sealing,

flush the circuit thoroughly with water. Then reconnect the circuit to the system. Thoroughly flush the equipment used for sealing – particularly the circulation pump – with plenty of water.

The product can be re-used if used undiluted.

IMPORTANT!

Remove Multiseal Water L immediately from objects (tiles, sinks, etc.) with water; otherwise it will crystallise and cannot be removed.

Observe the usual precautions when handling chemicals.

Keep out of reach of children!

Disposal: see safety data sheet.

Mixing ratio: Undiluted or mixed 1:1 with water. Not soluble with other chemicals. Temperature-resistant and pressure-resistant.

Suitability for storage: 5 years from the date of manufacture, keep frost-free.

Our information corresponds with our current experiences.

We reserve the right to make technical changes.

Safety data sheets can be downloaded on www.unipak.dk

INFORMATION

- Technical Data Sheet No. 3 p. 38
- Calculation table pp. 40–42



Liquid sealant for swimming pools

Multiseal® Pool

Multiseal® Pool eliminates leaks in swimming pools.

| Packaging | Art. No. | EAN |
|-----------|----------|---------------|
| 5 liter | 8020050 | 5708923800268 |
| 10 liter | 8020100 | 5708923800275 |

NOTE!

Multiseal Pool seals hard-walled pools like concrete pools and segment pools. It does not change the appearance of the swimming pool.

IMPORTANT!

After seismic shocks (earthquakes) or subsequent movement in the foundation, the swimming pool may leak again. Do not use with a water hardness of more than 25° (German hardness).

USER INSTRUCTIONS:

Shut off or switch off circulation pump and filter. Add the appropriate amount of Multiseal Pool to the pool. Remove the Multiseal Pool concentrate immediately from objects outside the pool (tiles, sinks, etc.) with water; otherwise it will crystallise and cannot be removed.

Create circulation without a filter in the pool. This can be done using a groundwater/dirty water pump, which is placed in the pool. Let the circulation run for 1 to 3 days until the swimming pool is sealed. Then drain the pool and remove product residue from the surface and tiles.

Alternatively let the water remain in the pool. Filter out the fibres and readjust the pH value of the pool water by means of pH-minus.

Observe the usual precautions when handling chemicals.

Keep out of reach of children!

Disposal: see safety data sheet.

Mixing ratio: 1:1000 = 1 litre Multiseal Pool to 1000 litres of swimming pool water.

Suitability for storage:
5 years from the date of manufacture, keep frost-free.

Our information corresponds with our current experiences. We reserve the right to make technical changes. Safety data sheets can be downloaded on www.unipak.dk



Liquid sealant for indoor waste-water pipes

Multiseal® Drain

Multiseal® Drain liquid sealant eliminates water loss in internal drains. Multiseal drain can be used with all commonly used materials for drain pipes (plastics, castings, clay, concrete, lead). Leaks on the pipe itself or on joints can be sealed.

| Packaging | Art. No. | EAN |
|-----------|----------|---------------|
| 5 liters | 8021050 | 5708923800299 |
| 10 liters | 8021100 | 5708923800312 |

Multiseal® Drain crystallises when it comes in contact with air. The leak is mechanically sealed. The leak sealed with Multiseal Drain is durable and resists ageing.

NOTE!

Before sealing with Multiseal Drain, we recommend thorough cleaning in the case of heavily contaminated (greasy) pipes. For underground sewer pipes, use Multiseal Sewer and Multiseal HC 60 (two components).

USER INSTRUCTIONS:

Before using Multiseal Drain, shut off the pipe and fill with water as a test to find out how much water is being lost. There may be a lot of liquid leaking when filling. Mix Multiseal Drain with water and add to the defective system. The mixture should remain in the system for 1 to 2 days, depending on the leak size and the wetness of the area around the leak.

For shutting off the drainpipe, use Multiseal shut-off bladders and stopper plugs.

Maximum water losses:

The quantity of lost water should not exceed 70% of the volume of the pipe sections to be sealed within 15 minutes.

IMPORTANT!

Remove Multiseal Drain immediately from objects (tiles, sinks, etc.) with water; otherwise it will crystallise and cannot be removed.

Observe the usual precautions when handling chemicals.

Keep out of reach of children!

Disposal: see safety data sheet.

Mixing ratio: 1 litre Multiseal Drain for maximum 5 litres of water. An inadequate dose reduces the product's effectiveness.

Suitability for storage: 5 years from the date of manufacture, keep frost-free.

Our information corresponds with our current experiences. We reserve the right to make technical changes. Safety data sheets can be downloaded on www.unipak.dk

INFORMATION

- Technical Data Sheet No. 4 p. 38
- Calculation table p. 41



Liquid sealant for underground sewer pipes (two-component system)

Multiseal® Sewer

Multiseal® Sewer liquid sealant is a two-component system for eliminating water loss in sewer pipes (**must be used together with Multiseal HC 60/reaction accelerator**). Multiseal Sewer and Multiseal HC 60/reaction accelerator can be used with all commonly available materials for sewer pipes (plastic, cast, clay, concrete, lead).

| Packaging | Art. No. | EAN |
|-----------|----------|---------------|
| 10 liter | 8022100 | 5708923800343 |

The product can be used to seal leaks on the pipe itself or on sleeve joints. Multiseal Sewer crystallizes when it comes in contact with the reaction accelerator Multiseal HC 60 on the pipe and outside the pipe. The leak is mechanically sealed. The sealing with Multiseal Sewer and Multiseal HC 60/reaction accelerator is permanent and resists ageing.

NOTE!

Before sealing with Multiseal Sewer, the pipe must be thoroughly cleaned.

Never mix Multiseal Sewer and Multiseal HC 60 reaction accelerator together.

Multiseal Sewer and Multiseal HC 60 can be re-used.

USER INSTRUCTIONS:

Before using Multiseal Sewer, shut off the sewer pipe and fill with water as a test to determine how much water is being lost.

After this, block off the cleaned sewer pipe (use an inspection camera to position the Multiseal shut-off bladder, stopper plugs, etc.). Use a suitable pump to pump Multiseal Sewer (without a reaction accelerator) into the leaking sewer pipe. **Thoroughly shake the Multiseal Sewer canister before use.** Leave the Multiseal Sewer in the line for approx. 1 hour. Completely drain Multiseal Sewer from the sewer line and rinse the pump. Immediately afterwards pump Multiseal HC 60 reaction accelerator into the sewer line. Leave the Multiseal HC 60 in the line for approx. 1 hour.

Pump out the reaction accelerator Multiseal HC 60, drain the sewer pipe completely and rinse the pump. Carry out the aforementioned procedure a second time.

If no more HC 60 is consumed in the second process, the line is sealed. Otherwise, repeat the whole procedure. Normally, however, two processes are sufficient to successfully seal a leak. Mechanically remove any product residue.

The load test with pressure can be carried out after 12–24 hours of curing of the seal.

Maximum water losses:

The quantity of lost water should not exceed 70% of the volume of the pipe sections to be sealed within 15 minutes.

IMPORTANT!

Remove Multiseal Sewer immediately from objects (tiles, sinks, etc.) with water; otherwise it will crystallise and can not be removed.

Observe the usual precautions when handling chemicals.

Keep out of reach of children!

Disposal: see safety data sheet.

Mixing ratio: undiluted

Suitability for storage: 5 years from the date of manufacture, keep frost-free.

Our information corresponds with our current experiences.

We reserve the right to make technical changes.

Safety data sheets can be downloaded on www.unipak.dk

INFORMATION

· Calculation table p. 41



Liquid sealant for underground sewer pipes (two-component system)

Multiseal® HC 60 reaction accelerator

(use only together with Multiseal Sewer).

| Packaging | Art. No. | EAN |
|-----------|----------|---------------|
| 10 liters | 8023100 | 5708923800367 |

Multiseal® HC 60 reaction accelerator is part of a two-component system for eliminating water loss in sewer pipes (must be used together with Multiseal Sewer). Multiseal Sewer and Multiseal HC 60/reaction accelerator can be used with all commonly available materials for sewer pipes (plastic, cast, clay, concrete, lead).

The product can be used to seal leaks on the pipe itself or on sleeve joints. Multiseal Sewer crystallizes when it comes in contact with the reaction accelerator Multiseal HC 60 on the pipe and outside the pipe. The leak is mechanically sealed. A leak sealed

with Multiseal Sewer and Multiseal HC 60 reaction accelerator is permanent and resists ageing.

NOTE!

Before sealing with Multiseal Sewer, the pipe must be thoroughly cleaned.

Never mix Multiseal Sewer and Multiseal HC 60 reaction accelerator together.

Multiseal Sewer and Multiseal HC 60 can be re-used.

USER INSTRUCTIONS:

Before using Multiseal Sewer, shut off the sewer pipe and fill with water as a test to determine how much water is being lost.

After this, block off the cleaned sewer pipe (use an inspection camera to position the Multiseal shut-off bladder, stopper plugs, etc.). Use a suitable pump to pump Multiseal Sewer (without a reaction accelerator) into the leaking sewer pipe. **Thoroughly shake the Multiseal Sewer canister before use.** Leave the Multiseal Sewer in the line for approx. 1 hour. Completely drain Multiseal Sewer from the sewer line and rinse the pump. Immediately afterwards, pump the reaction accelerator Multiseal HC 60 into the sewer line. Also leave Multiseal HC 60 in the line for approx. 1 hour. Pump out the reaction accelerator Multiseal HC 60, drain the sewer pipe completely and rinse the pump. Carry out the aforementioned procedure a second time.

If no more Multiseal HC 60 is consumed in the second process, the line is sealed. Otherwise, repeat the whole procedure. Normally, however, two processes are sufficient to successfully seal a leak. Mechanically remove any product residue.

The load test with pressure of 0.5 bar can be carried out after 12–24 hours of curing of the seal.

Maximum water losses:

The quantity of lost water should not exceed 70% of the volume of the pipe sections to be sealed within 15 minutes.

IMPORTANT!

Remove Multiseal HC 60 immediately from objects (tiles, sinks, etc.) with water.

Observe the usual precautions when handling chemicals.

Keep out of reach of children!

Disposal: see safety data sheet.

Mixing ratio: undiluted

Suitability for storage: 5 years from the date of manufacture, keep frost-free.

Our information corresponds with our current experiences.

We reserve the right to make technical changes.

Safety data sheets can be downloaded on www.unipak.dk

INFORMATION

· Calculation table p. 41



Corrosion protection for heating systems also with aluminium

Multiseal® K 32

Protects by means of protective film formation, particularly suitable for plastic underfloor heating systems but it also protects steel, aluminium and copper materials against corrosion. Prevents oxygen diffusion.

| Packaging | Art. No. | EAN |
|------------|----------|---------------|
| 2,5 liters | 8026025 | 5708923800411 |
| 5 Liters | 8026050 | 5708923800428 |

The dispersant component in Multiseal K 32 prevents lime-scale deposits on pipe walls and thus guarantees the formation of an excellent corrosion-protection film. Protects also against lime-scale deposits in general and prevents oxygen diffusion. Multiseal K 32 inhibitor keeps control and regulating devices as well as pipes free from suspended solids. Protects all new and already operating heating systems. Multiseal K 32 keeps lime scale in a solution.

NOTE!

The heating system must be free from additives such as sealants and other inhibitors. The inhibited system must be checked once a year.

If used properly, it will not damage pumps or control valves.

Before using the product, we recommend flushing the system thoroughly to remove deposits and impurities.

USER INSTRUCTIONS:

Thoroughly rinse heavily contaminated systems and, if necessary, clean with Multiseal HR. Check the contents by emptying the heating system via a water meter. Re-fill the system with water. Then add the required quantity of Multiseal K 32 with a filling pump (Multiseal G 20 or Multiseal G 21J) to the system. Then fill the system with water and purge the system.

Multiseal K 32 is compatible with Multiseal 30 E, Multiseal FS and all commercially available antifreeze liquids.

IMPORTANT!

The efficacy of Multiseal K 32 must be checked approx. 1 hour after having been mixed into the system water using "Multiseal Test" equipment.

The molybdate content should be from 250 to 400 mg/l Mo. Since Multiseal K 32 dissolves existing lime-scale deposits, the heating system should be thoroughly rinsed/flushed after 1–3 months if the heating performance of the system declines. A sludge trap and magnetic filter should be installed in old large-scale systems. Re-fill the system with Multiseal K 32 and check the concentration.

Observe the usual precautions when handling chemicals!

Keep out of reach of children!

Disposal: see safety data sheet.

Mixing ratio: 1 litre of Multiseal K 32 inhibitor to 100 litres of heating water.

Suitability for storage: 5 years from the date of manufacture, keep frost-free.

Our information corresponds with our current experiences.

We reserve the right to make technical changes.

Safety data sheets can be downloaded on www.unipak.dk

INFORMATION

- Technical Data Sheet No. 1 p. 38
- Calculation table pp. 40–42



Frost-proofing and corrosion protection for all systems

Multiseal® FS

Protects heating and cooling systems against damage caused by frost, rust and corrosion.

Multiseal FS can also be used in systems with heat pumps, underfloor heating systems and solar systems.

| Packaging | Art. No. | EAN |
|-----------|----------|---------------|
| 5 liters | 8027050 | 5708923800435 |
| 10 liters | 8027100 | 5708923800442 |

Protects heating systems from freezing. Multiseal FS is a high-quality product mixture for safe protection against frost and rust damage.

Multiseal FS contains propylene glycol.

NOTE!

The heating system must be free from additives such as sealants, corrosion inhibitors and other antifreeze solutions. If used properly, it will not damage pumps or control valves.

Before using the product, we recommend flushing the system thoroughly to remove deposits and impurities.

USER INSTRUCTIONS:

Check the contents by emptying the heating system via a water meter. Re-fill the system halfway with water. Then add the required quantity of Multiseal FS with a filling pump (e.g. Multiseal G 20 or Multiseal G 21J) to the system. Then fill the system with water and purge thoroughly. The antifreeze content must be checked after several hours of circulation using the frost protection testers. It is advisable to check the frost protection level annually and, if necessary, to top it up. The tester is used to determine the propylene glycol content.

Glycol-containing frost protection such as Multiseal FS should not be filled into systems containing galvanized pipes.

Observe the usual precautions when handling chemicals!

Avoid contact with the eyes and skin and wear goggles.

Keep out of reach of children!

Disposal: see safety data sheet.

Suitability for storage: 5 years from the date of manufacture.

Our information corresponds with our current experiences.

We reserve the right to make technical changes.

Safety data sheets can be downloaded on www.unipak.dk

INFORMATION

· Calculation table p. 41

MIXING RATIO:

| Water content of the heating system | Amount of system water to discharge | Amount of Multiseal FS to add. | Protection up to |
|-------------------------------------|-------------------------------------|--------------------------------|------------------|
| 100 litres | - 12 litres | + 12 litres | -3°C |
| 100 litres | - 18 litres | + 18 litres | -6°C |
| 100 litres | - 25 litres | + 25 litres | -10°C |
| 100 litres | - 32 litres | + 32 litres | -15°C |
| 100 litres | - 40 litres | + 40 litres | -20°C |



Cleaning fluid for thermal solar systems

Multiseal® SOR

Removes contamination from solar systems caused by thermal overloading of the heat transfer fluid in vacuum-tube collectors or conventional solar collectors.

| Packaging | Art. No. | EAN |
|-----------|----------|---------------|
| 10 liters | 8031100 | 5708923800527 |

Multiseal SOR is suitable for cleaning of solar systems operated with both vacuum-tube collectors or conventional solar collectors.

NOTE!

Empty the solar system to be cleaned completely to achieve the best cleaning results. If Multiseal SOR becomes diluted by the heat-transfer medium or water, the cleaning effect of the product will decrease.

USER INSTRUCTIONS:

Before cleaning a solar system with Multiseal SOR, empty the system completely to achieve the best cleaning results. If Multiseal SOR becomes diluted by the heat-transfer medium or water, the cleaning effect of the product will decrease.

Also, cover the collectors before starting the cleaning process. After this, fill the system with Multiseal SOR and let the medium circulate at 50–60 °C for 1 or 2 hours. Avoid temperatures above this out of consideration for the elastomer materials used in solar systems, such as EPDM. Depending on the degree of contamination, the process may have to be repeated several times. After completing the cleaning, empty the system as completely as possible. Any residual product left in the system must be blown out using compressed air.

IMPORTANT:

When handling Multiseal SOR, carefully observe the precautions and workplace safety precautions required for handling chemicals, as well as the information contained in the safety data sheet.

Ensure good ventilation!

No smoking!

Safety notices:

Observe the usual precautions when handling chemicals!

Wear rubber gloves and goggles; avoid contact with skin and eyes!

Keep out of reach of children!

Mixing ratio: undiluted

Suitability for storage: 5 years from the date of manufacture.

Disposal: Any residue which cannot be recycled must undergo special treatment pursuant to local regulations, e.g. incineration at an approved facility.

After spillage or leakage, Multiseal SOR must be collected and appropriately disposed of using appropriate materials.

Our information corresponds with our current experiences. We reserve the right to make technical changes. Safety data sheets can be downloaded on www.unipak.dk



Heating cleaner for all heating systems (removes lime scale, rust, sediments, etc.).

Multiseal® HR

Multiseal® HR releases lime scale, rust and sludge deposits from heating systems and increases performance. Multiseal HR is used to clean old heating systems and systems being modernised.

| Packaging | Art. No. | EAN |
|-----------|----------|---------------|
| 5 liters | 8028050 | 5708923800466 |

Multiseal® HR is suitable for all commonly available materials for pipes in heating systems (plastics and metals). Multiseal HR contains a high proportion of inhibitors, which protect the materials against corrosion during cleaning.

NOTE!

The heating system must be free from additives such as antifreeze, corrosion inhibitors, sealants and brine. If used properly, Multiseal HR will not damage pumps or control valves. When lime scale deposits are dissolved, gas may occur. Make sure the heating system is sufficiently ventilated!

When cleaning highly contaminated systems, where there are energy-optimised pumps, condensing boilers and other finely pitted heat exchangers, it is necessary that dirt filters are fitted in front of these units and a magnetic filter should also be fitted in front of the energy-optimised pumps before the system is cleaned with Multiseal HR.

USER INSTRUCTIONS:

Before cleaning, all heavily contaminated system water must be emptied out and replaced with fresh water. All valves that regulate the heating circuit must be fully opened. If required, fit filters as described above.

Add Multiseal HR in the ratio indicated and switch on the circulation pump to maximise mixing and cleaning. The reaction time is from 2 to 4 days at a heating temperature not exceeding 60 °C.

After completing the cleaning process, completely empty the heating system. Flush the heating system with water. Install a sludge trap in old large-scale systems. The concentration of Multiseal HR can also be higher in underfloor heating systems with low flow rates.

In order to best protect the cleaned heating system, add Multiseal K 32 or Multiseal FS to the system.

If Multiseal HR is used for heat exchanger purification, dilute HR with water 1:1 and circulate through an external pump directly over the heat exchanger until sufficient descaling is achieved. After descaling, collect HR and water in a suitable container and rinse the heat exchanger and pump with plenty of clean water. Alternatively, connect the heat exchanger directly to the water supply through the cleaned pump and release the return water into the drain. It is recommended to flush the heat exchanger in this manner for at least 10 minutes.

IMPORTANT!

Remove Multiseal HR immediately from objects, etc. with water. Do not add the heating cleaner to the heating system along with Multiseal sealing products.

Observe the usual precautions when handling chemicals!

Keep out of reach of children!

Disposal: see safety data sheet.

Mixing ratio: 1 litres to 100 litres of heating water.

Suitability for storage: 5 years from the date of manufacture; protect against frost, store cool and away from light.

Our information corresponds with our current experiences.

We reserve the right to make technical changes.

Safety data sheets can be downloaded on www.unipak.dk

INFORMATION

- Technical Data Sheet No. 1 p. 38
- Calculation table pp. 40–42



Cleaner for domestic and drinking water pipes (removes lime scale, rust, etc.).

Multiseal® R 13

Cleaning concentrate used for removing lime scale, rust and boiler scale in domestic and drinking water systems. Multiseal R 13 is suitable for most materials such as steel, copper, brass and galvanised pipes. Multiseal R 13 can also be used in underfloor heating systems with low flow circulation.

| Packaging | Art. No. | EAN |
|-----------|----------|---------------|
| 5 liters | 8029050 | 5708923800473 |

The reliable Multiseal R 13 cleaning technology:

The chemical cleaning of water and heating systems for the removal of lime scale, boiler scale and rust with Multiseal R 13 is a safe and fast method for restoring full system functionality. Multiseal R 13 is suitable for cleaning all water systems, such as domestic water pipes, heat exchangers, water heaters, boilers/instantaneous water heaters, cooling systems and cooling towers.

Application area for Multiseal R 13:

Multiseal R 13 is used as a cleaning fluid in a circulation process for all water systems which are calcified and/or rusted. Multiseal R 13 is suitable for most materials such as steel, copper, brass and galvanised material. Multiseal R 13 is also a suitable means for cleaning pumps and valves.

USER INSTRUCTIONS:

Features:

Multiseal® R 13 is a water-miscible, slightly foaming liquid with a pH value of ≤ 0.5 . Multiseal R 13 dissolves rust, lime scale and boiler scale. The cleaning rate can be increased by warming up the Multiseal R 13 solution. The solution temperature should not exceed 50° C, however.

Instructions for use:

Multiseal R 13 can be diluted with up to 2 parts of water (1 part Multiseal R 13 and 2 parts water). Circulate the solution through the system to be cleaned. The pH of the diluted solution is ≤ 1 . During the cleaning process, Multiseal R 13 is consumed and the pH value increases. At a pH of 6, Multiseal R 13 is practically totally consumed.

When cleaning valves, pump parts, etc., place the parts in a 50% solution of Multiseal R 13. The cleaning of heavily calcified systems may take several hours.

Control option:

Multiseal R 13 is consumed during the cleaning process and the pH value increases. The pH indicator sticks supplied are used to check the residual effectiveness. If, during the check, the Multiseal R 13 solution is totally consumed, and you measure a pH value of 6, although crusts are still present, add a fresh solution after draining the used solution. After crusts have been removed or softened, remove the used solution. Before adding the used solution to waste water, heavily dilute it with water. Then rinse the cleaned system several times with plenty of water. To neutralise acid residue in the system, it is advisable to add Multiseal Neutralizer in a concentration of 1: 100 for the penultimate rinse. The final rinse is done with water only. It is advisable to fill the cleaned system as quickly as possible with water to avoid corrosion by air. If Multiseal R 13 is used for descaling eg. heat exchangers, it is recommended that an acid-proof external pump is used.

Observe the usual precautions when handling chemicals!

Keep out of reach of children!

Disposal: see safety data sheet.

Mixing ratio: Multiseal R13 can be used undiluted or diluted with maximum 2 parts water.

Suitability for storage: 5 years from the date of manufacture, keep frost-free.

Our information corresponds with our current experiences.

We reserve the right to make technical changes.

Safety data sheets can be downloaded on www.unipak.dk

INFORMATION

- Technical Data Sheet No. 1 p. 38
- Calculation table pp. 40–42



Neutralization liquid for Multiseal R 13

Multiseal® Neutralizer

Neutralizes pipelines after they have been descaled with Multiseal R 13.

| Packaging | Art. No. | EAN |
|-----------|----------|---------------|
| 5 liters | 8050010 | 5708923905871 |

Scope of use for Multiseal Neutralizer:

Use Multiseal Neutralizer as a neutralization fluid in pipelines cleaned with Multiseal R 13. Dilute Multiseal Neutralizer with water, ratio 1:100.

Properties:

Multiseal® Neutralizer is a slightly foamy liquid with a pH of around 9.5, and it can be mixed with water under all conditions.

USER INSTRUCTIONS:

After cleaning a pipeline with Multiseal R 13, flush the cleaned pipeline several times with copious amounts of water. Add Multiseal Neutralizer to the water (ratio 1:100) for the next-to-last flushing to neutralize acid residue in the pipeline. Use only water for the final flushing cycle. It is advisable to refill the cleaned pipeline with water as soon as possible to prevent corrosion caused by air contact.

Shake the canister thoroughly before use.

Observe the usual precautions when handling chemicals!

Keep out of reach of children!

Disposal: see safety data sheet.

Mixture ratio:

Dilute Multiseal Neutralizer with water, ratio 1:100.

Suitability for storage: 5 years from the date of manufacture, keep frost-free.

Store between 5 and 40 °C in a dry, well ventilated place away from sources of heat and direct sunlight.

EUH210 Safety data sheet available on request.

*Our information corresponds with our current experiences.
We reserve the right to make technical changes.
Safety data sheets can be downloaded on www.unipak.dk*

Dirt-free sealing of pipes and ducts, without having to break open walls, ceiling or floor.

NO DUST, NO NOISE, NO STRESS.

“Clean work!”



Structural water damage does not necessarily have to result in a large construction project. Our sealing process is done by adding a crystal-based liquid product to the pipe system. The leak is sealed from the inside by the formation of silicon dioxide.
Reliable and lasting!



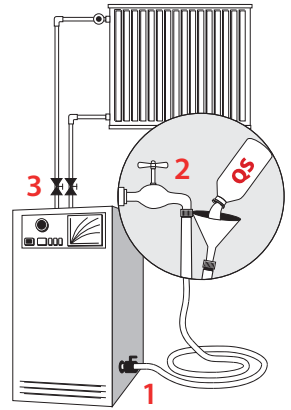
Quick-Sealer for heating systems also with gas boilers.

Multiseal® QS Micro

Suitable for water loss up to 0.5 liters / hour = 10 liters / day
 QS Micro seals leaks in heating systems and pipes in just 3 days.

Suitable in case of water loss up to 0.5 liters / hour. QS Micro permanently seals leaks in heating systems and pipes in just 3 days. QS Micro crystallizes and hardens on contact with CO₂ and a lasting sealing of the leak is obtained. QS Micro can be used on all commonly occurring pipe materials (copper, steel, plastic, stainless steel, galvanized material). No special tools are required to fill QS Micro in to a heating system.

| Packaging | Item-no. | EAN-no. | VVS-no. |
|-----------|----------|---------------|-----------|
| 1 liter | 8040010 | 5708923906724 | 251208010 |



MANUAL:

NOTE: Shake the container with QS Micro thoroughly before use!

1. Empty approx. 20 liters of system water from the plant.
2. Close the filling / draining tap (1).
3. Drain the filling hose of water.
4. Fill the QS Micro into the hose using a funnel.
5. Connect the hose to the tap (2).
6. Open the filling / draining tap (1).
7. Open the tap (2). QS Micro is now pressed into the heating circuit.
8. Close the tap (2) and the fill / drain tap.
9. Disconnect the hose from the tap (2) and empty it.
10. Repeat the process until the required amount of QS Micro is filled the system.
11. Then fill the heating system to operating pressure.
12. Fully open all heating and mixing valves.
13. Set the heating system to operating temperature.
14. Vent the system.
15. Empty the system after 3 days and fill it with fresh water. If there is NO gas boiler or condensing boiler on the plant, you can also choose to leave the product in the plant.
16. If necessary, pull off the pump head of and clean it.
17. Heat, circulation and a small amount of CO₂ contact are necessary for an optimal fast and durable seal.
18. If conditions are unfavorable, the curing time can be extended.

NOTE: We generally recommend consulting an authorized plumber before using the product.

The above information is based on our current experience. We reserve the right to make technical changes and improvements.

For district heating systems:

If a heating system runs on district heating, it is necessary to determine in which section of the system the leak is located inside the house. Establish a closed circulation through the part (circuit) in which the leak has been found using an external circulation pump with builtin heating and add the correct concentration of Multiseal QS Micro. Thoroughly shake the bottle with Multiseal QS Micro before mixing the product into the system water. Heat up the circulating Multiseal QS mixture as this will speed up the sealing procedure. After this, maintain circulation (with heating) through the circuit section with the leak under the described conditions until the leak is sealed, usually for 2–3 days. After sealing, rinse the heating circuit thoroughly with several changes of water; refill the circuit with water and reconnect the circuit to the district heating system. The equipment used for the sealing procedure – especially the external circulation pump – must also be rinsed thoroughly with several changes of water.

Safetydata for QS Micro

In case of contact with eyes, rinse thoroughly with water and consult a physician. In case of skin contact, wash immediately using plenty of water. Wear suitable protective gloves and eye/face protection when working with the product. Immediately remove QS Micro from objects (tiles, sinks, etc.) with plenty of water, otherwise a crystallization takes place and cannot be removed.

The usual precautions when handling chemicals must be observed!

Keep out of reach of children!

Mixing ratio:

1 liter of QS Micro per 200 liters of system water.

Shelf life/Storage:

Unopened 5 years from date of manufacture. Protect from frost.

NOTE:

There must be no additives in the heating system (frost and corrosion protection). Filters, sieves and dirt traps must be removed or a bypass must be established.



Quick-Sealer for heating systems.

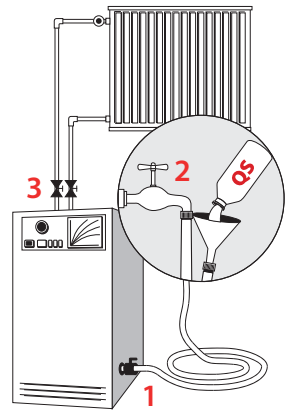
Multiseal® QS Normal

Suitable for water loss up to 8 liters/hour = 200 liters/day
 QS Normal seals leaks in heating systems and pipes in just 3 days.

Suitable in case of water loss up to 8 liters/hour. QS Normal permanently seals leaks in heating systems and pipes in just 3 days. QS Normal crystallizes and hardens on contact with CO₂ and a lasting sealing of the leak is obtained. QS Normal can be used on all commonly occurring pipe materials (copper, steel, plastic, stainless steel, galvanized material). No special tools are required to fill QS Normal into a heating system. QS Normal can remain in the heating system!

May not be used in gas boilers!

| Packaging | Item-no. | EAN-no. | VVS-no. |
|-----------|----------|---------------|-----------|
| 1 liter | 8041010 | 5708923906731 | 251208110 |



MANUAL:

NOTE: Shake the container with QS Normal thoroughly before use!

1. Empty approx. 20 liters of system water from the system.
2. Close the filling/drain tap (1).
3. Drain the filling hose of water.
4. Fill the QS Normal into the hose using a funnel.
5. Connect the hose to the tap (2).
6. Open the filling/drain tap (1).
7. Open the tap (2). QS Normal is now pressed into the heating system.
8. Close the tap (2) and the fill/drain tap.
9. Disconnect the hose from the tap (2) and empty it.
10. Repeat the process until the required amount of QS Normal is filled into the system.
11. Then fill the heating system to operating pressure.
12. Fully open all heating and mixing valves.
13. Set the heating system to operating temperature.
14. Vent the system.
15. You can now leave the product in the system or choose to empty the system after 3 days and fill it with fresh water.
16. If necessary, pull off the pump head and clean it.
17. Heat, circulation and a small amount of CO₂ contact are necessary for an optimal fast and durable seal.
18. If conditions are unfavorable, the curing time can be extended.

NOTE: We generally recommend consulting an authorized plumber before using the product.

The above information is based on our current experience. We reserve the right to make technical changes and improvements.

For district heating systems:

If a heating system runs on district heating, it is necessary to determine in which section of the system the leak is located inside the house. Establish a closed circulation through the part (circuit) in which the leak has been found using an external circulation pump with builtin heating and add the correct concentration of Multiseal QS Normal. Thoroughly shake the bottle with Multiseal QS Normal before mixing the product into the system water.

Heat up the circulating Multiseal QS mixture as this will speed up the sealing procedure. After this, maintain circulation (with heating) through the circuit section with the leak under the described conditions until the leak is sealed, usually for 2–3 days. After sealing, rinse the heating circuit thoroughly with several changes of water; refill the circuit with water and reconnect the circuit to the district heating system. The equipment used for the sealing procedure – especially the external circulation pump – must also be rinsed thoroughly with several changes of water.

Safetydata for QS Micro

In case of contact with eyes, rinse thoroughly with water and consult a physician. In case of skin contact, wash immediately using plenty of water. Wear suitable protective gloves and eye/face protection when working with the product. Immediately remove QS Micro from objects (tiles, sinks, etc.) with plenty of water, otherwise a crystallization takes place and cannot be removed.

The usual precautions when handling chemicals must be observed!

Keep out of reach of children!

Mixing ratio:

1 liter of QS Normal per 200 liters of system water.

Shelf life/Storage:

Unopened 5 years from date of manufacture. Protect from frost.

NOTE:

There must be no additives in the heating system (frost and corrosion protection). Filters, sieves and dirt traps must be removed or a bypass must be established.



Quick-Sealer for heating systems

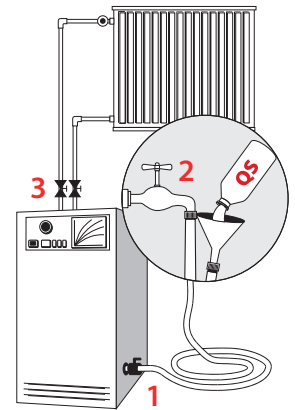
Multiseal® QS Super

Suitable for water loss up to 20 liters/hour = 500 liters/day
 QS Super seals leaks in heating systems and pipes in just 3 days.

Suitable in case of water loss up to 20 liters/hour. QS Super permanently seals leaks in heating systems and pipes in just 3 days. QS Super crystallizes and hardens on contact with CO₂ and a lasting sealing of the leak is obtained. QS Super can be used on all commonly occurring pipe materials (copper, steel, plastic, stainless steel, galvanized material). No special tools are required to fill QS Super into a heating system. QS Super can remain in the heating system.

May not be used in gas boilers!

| Packaging | Item-no. | EAN-no. | VVS-no. |
|-----------|----------|---------------|-----------|
| 1 liter | 8042010 | 5708923906748 | 251208210 |



MANUAL:

NOTE: Shake the container with QS Super thoroughly before use!

1. Empty approx. 20 liters of system water from the system.
2. Close the filling/drain tap (1).
3. Drain the filling hose of water.
4. Fill the QS Super into the hose using a funnel.
5. Connect the hose to the tap (2).
6. Open the filling/drain tap (1).
7. Open the tap (2). QS Super is now pressed into the heating circuit.
8. Close the tap (2) and the fill/drain tap.
9. Disconnect the hose from the tap (2) and empty it.
10. Repeat the process until the required amount of QS Super is filled into the system.
11. Then fill the heating system to operating pressure.
12. Fully open all heating and mixing valves.
13. Set the heating system to operating temperature.
14. Vent the system.
15. You can now leave the product in the system or choose to empty the system after 3 days and fill it with fresh water.
16. If necessary, pull off the pump head and clean it.
17. Heat, circulation and a small amount of CO₂ contact are necessary for an optimal fast and durable seal.
18. If conditions are unfavorable, the curing time can be extended.

NOTE: We generally recommend consulting an authorized plumber before using the product.

The above information is based on our current experience. We reserve the right to make technical changes and improvements.

For district heating systems:

If a heating system runs on district heating, it is necessary to determine in which section of the system the leak is located inside the house. Establish a closed circulation through the part (circuit) in which the leak has been found using an external circulation pump with builtin heating and add the correct concentration of Multiseal QS Super. Thoroughly shake the bottle with Multiseal QS Super before mixing the product into the system water.

Heat up the circulating Multiseal QS mixture as this will speed up the sealing procedure. After this, maintain circulation (with heating) through the circuit section with the leak under the described conditions until the leak is sealed, usually for 2–3 days. After sealing, rinse the heating circuit thoroughly with several changes of water; refill the circuit with water and reconnect the circuit to the district heating system. The equipment used for the sealing procedure – especially the external circulation pump – must also be rinsed thoroughly with several changes of water.

Safetydata for QS Micro

In case of contact with eyes, rinse thoroughly with water and consult a physician. In case of skin contact, wash immediately using plenty of water. Wear suitable protective gloves and eye/face protection when working with the product. Immediately remove QS Micro from objects (tiles, sinks, etc.) with plenty of water, otherwise a crystallization takes place and cannot be removed.

The usual precautions when handling chemicals must be observed!

Keep out of reach of children!

Mixing ratio:

1 liter of QS Super per 200 liters of system water

Shelf life/Storage:

Unopened 5 years from date of manufacture. Protect from frost.

NOTE:

There must be no additives in the heating system (frost and corrosion protection). Filters, sieves and dirt traps must be removed or a bypass must be established.



Quick-Sealer for boilers

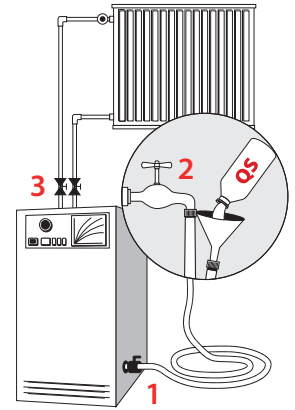
Multiseal® QS Boiler

Suitable for water loss up to 35 liters/hour = 800 liters/day
 QS Boiler permanently seals leaks in boilers in just 3 hours.

Suitable for water loss up to 35 liters/hour. QS Boiler permanently seals leaks in heating systems and pipes in just 3 hours. QS Boiler crystallizes and hardens on contact with CO₂ and a lasting sealing of the leak is obtained. QS Boiler can be used on all commonly occurring boiler materials (copper, steel, stainless steel, aluminum). No special tools are required to fill QS Boiler into a heating system.

May not be used in gas boilers.

| Packaging | Item-no. | EAN-no. | VVS-no. |
|-----------|----------|---------------|-----------|
| 1 liter | 8043010 | 5708923906755 | 251208310 |



MANUAL:

NOTE: Shake the container with QS Super thoroughly before use!

1. Close the shut-off valves for the boiler (3).
2. Drain approx. 10 liters of water from the boiler
3. Close the filling / draining tap (1).
4. Drain the filling hose of water.
5. Fill the QS Boiler into the hose using a funnel.
6. Connect the hose to the tap (2).
7. Open the filling / draining tap (1).
8. Open the tap (2). QS Boiler is now pressed into the boiler.
9. Close the tap (2) and the filling / draining tap.
10. Disconnect the hose from the tap (2) and empty it.
11. Repeat the process until necessary quantity QS Boiler is filled the boiler.
12. Then fill the boiler to operating pressure.
13. Let the kettle run up in temperature (80 degrees).
14. If necessary, switch off the circulation pump if it cannot be used for internal circulation.
15. Empty and rinse the kettle after 3 hours and fill it again with domestic water
16. Open the shut-off valves (3) again and take the system into normal (Temperature and pressure) use again. Bleed the system and the pump.
17. If the conditions are unfavorable, the curing time can be extended.

NOTE: We generally recommend consulting an authorized plumber before using the product.

Safetydata for QS Boiler

In case of contact with eyes, rinse thoroughly with water and consult a physician. In case of skin contact, wash immediately using plenty of water. Wear suitable protective gloves and eye/face protection when working with the product. Immediately remove QS Boiler from objects (tiles, sinks, etc.) with plenty of water, otherwise a crystallization takes place and cannot be removed.

The usual precautions when handling chemicals must be observed!

Keep out of reach of children!

Mixing ratio:

1 liter of QS Boiler per 200 liters of system water

Shelf life/Storage:

Unopened 5 years from date of manufacture.
 Protect from frost.

NOTE:

There must be no additives in the heating system (frost and corrosion protection).
 Filters, sieves and dirt traps must be removed or a bypass must be established.

The above information is based on our current experience. We reserve the right to make technical changes and improvements.



Concentrated corrosion protection for heating systems

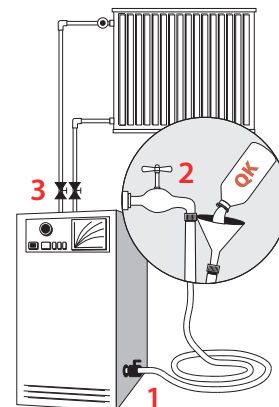
Multiseal[®] QK Corrosion

Protects heating systems with pipes and components of steel, aluminum, and copper against corrosion.

Protects heating systems with pipes and components of steel, aluminum, and copper against corrosion. Multiseal QK also protects underfloor heating with plastic pipes against oxygen diffusion, as a diffusion-tight protective film is formed on the inside of the pipe. QK Corrosion prevents limescale deposits on the pipe walls and thus ensures the formation of an optimal corrosion protection film.

QK Corrosion holds control and control units as well as all pipelines in the system free of sediments. Protects all new as well as already active heating systems. No special tools are required to fill QK Corrosion in a heating system.

| Packaging | Item-no. | EAN-no. | VVS-no. |
|-----------|----------|---------------|-----------|
| 1 liter | 8045010 | 5708923906779 | 251228510 |



MANUAL:

NOTE: Rinse heavily soiled systems thoroughly beforehand and clean if necessary with QR Cleaning Fluid

1. Empty approx. 20 liters of system water from the system.
2. Close the filling/draining tap (1).
3. Drain the filling hose of water.
4. Fill the QK Corrosion into the hose using a funnel.
5. Connect the hose to the tap (2).
6. Open the filling/draining tap (1).
7. Open the tap (2). QK Corrosion is now pressed into the heating circuit.
8. Close the tap (2) and the fill/drain tap.
9. Disconnect the hose from the tap (2) and empty it.
10. Repeat the process until the required amount of QK Corrosion is filled the system.
11. Then fill the heating system to operating pressure.
12. Fully open all heating and mixing valves.
13. Set the heating system to operating temperature.
14. Vent the system.
15. QK Corrosion must now remain in the system.
16. The dosage of QK Corrosion must be checked approx. 1 week after filling with Multiseal Test. Molybdate content should be between 250 and 400 mg / l Mo.
17. As QK Corrosion dissolves and loosens existing deposits, the heating system must be rinsed thoroughly after ca. 1 to 3 months.
Then refill the system with QK Corrosion as described above, and measure the concentration again. Corrosion protection is lost if QK Corrosion is dosed insufficiently.

NOTE: We generally recommend consulting an authorized plumber before using the product.

The above information is based on our current experience. We reserve the right to make technical changes and improvements.

Safetydata for QK Corrosion

In case of contact with eyes, rinse immediately with water and consult a physician. In case of skin contact wash immediately with plenty of water. Wear suitable protective gloves and eye / face protection when working. The usual precautions when handling chemicals must be observed!

Keep out of reach of children!

Disposal:

See safety data sheet.

Composition:

Molybdate-containing product with added CU inhibitors .

Mixing ratio:

1 liter of QS Corossion per 200 liters of system water.

Shelf life/Storage:

Unopened 5 years from date of manufacture.
Protect from frost.

NOTE:

There must be no additives in the heating system (frost and corrosion protection). The concentration of QK Corrosion must be checked once a year.



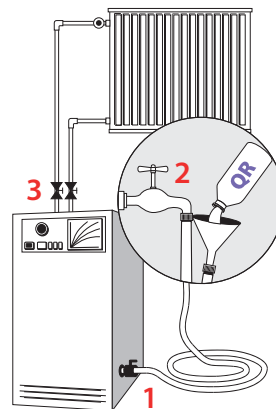
Concentrated Cleaning fluid for heating systems

Multiseal® QR Cleaning fluid

Removes limescale, rust and sludge deposits from pipe systems and increases system efficiency and thus reduces energy consumption. Can be used on all materials, such as copper, steel, stainless steel, aluminum, and plastic.

QR Cleaning fluid removes limescale, rust and sludge deposits from pipe systems and increases system efficiency and thus reduces energy consumption. Use of QR Cleaning Fluid is highly recommended in connection with modernization or cleaning and optimizing old heating systems. QR Cleaning fluid can be used on materials commonly used in thermal construction, such as copper, steel, stainless steel, aluminum, and plastic. No special tools are required to fill QR Cleaning Fluid in a heating system.

| Packaging | Item-no. | EAN-no. | VVS-no. |
|-----------|----------|---------------|-----------|
| 1 liter | 8044010 | 5708923906762 | 251231110 |



MANUAL:

NOTE: Rinse heavily soiled systems thoroughly beforehand using plenty of water.

1. Empty approx. 20 liters of system water from the system.
2. Close the filling/draining tap.
3. Drain the filling hose of water.
4. Fill the QR Cleaning fluid into the hose using a funnel.
5. Connect the hose to the tap.
6. Open the filling/draining tap.
7. Open the tap. QR Cleaning fluid is now pressed into the heating circuit.
8. Close the tap and the fill/drain tap.
9. Disconnect the hose from the tap and empty it.
10. Repeat the process until the required amount of QR Cleaning fluid is filled the system.
11. Then fill the heating system to operating pressure.
12. Fully open all heating and mixing valves.
13. Set the heating system to operating temperature.
14. Vent the system.
15. QR Cleaning fluid must remain in the plant 2 - 4 days at an operating temperature of max. 60° C. When the limescale deposits in the heating system dissolve, gas can be evolved. Provide adequate ventilation of the heating system before filling the QR Cleaning Fluid in to the system!
16. Then empty the heating system completely again and rinse it thoroughly with water.
17. Finally, refill the heating system with fresh water and add QK Corrosion protection if necessary.

NOTE: We generally recommend consulting an authorized plumber before using the product.

The above information is based on our current experience. We reserve the right to make technical changes and improvements.

Keep out of reach of children!

Disposal:

See safety data sheet.

Mixing ratio:

1 liter of QS Cleaning fluid per 200 liters of system water.

Shelf life/Storage:

Unopened 5 years from date of manufacture.
Store cool and protected from sun light.

NOTE:

There must be no additives in the heating system such as frost and corrosion protection or sealing fluids. (frost and corrosion protection). The concentration of QK Corrosion must be checked once a year.



Multiseal® Test

For measuring Multiseal K 32 (measures the molybdate content in heating water/efficiency of Multiseal K 32).



Multiseal® G 20 filling pump

Pump for adding Multiseal products to closed water circuits directly from the disposable 5-litre or 10-litre container.

Application:

1. Prepare a 10-litre bucket with water.
2. Drain approx. 10 litres of heating water more than the quantity to be filled beforehand.
3. Thoroughly shake the Multiseal product container until the contents are well mixed.
4. Place the filling pump in the canister or in an empty bucket and connect the pressure hose to the boiler fill and drain valve.
5. Open the boiler tap and slowly pump the required quantity of product into the heating system.
6. Once the prescribed quantity has been added, place the filling pump in the bucket provided and press the water into the heating system until the product residue from the pressure hose is pumped into the heating system and the pressure gauge shows the required pressure.
7. Close the boiler fill and drain valve, release the pressure hose. Caution! The pressure hose is filled with water.
8. Flush the Multiseal Heat Filling pump with clean water.

With Multiseal Gas, please use the Multiseal Gas complete kit!



Multiseal® G 21 J pressure container (with compressor connection)

For the filling of all Multiseal products. Container made of stainless steel, pressure gauge for container pressure. Filling funnel for rapid, drip-free filling.

Fill volume 10 litres | pressure: max. 6 bar

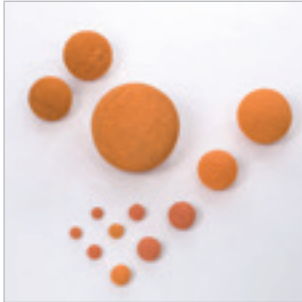
Application:

- Create a connection to the pressure container and system to be filled (hose)
Close the boiler fill and drain valve. Fill container with Multiseal product (max. 10 l) and put container under pressure (5 bar).
Open the boiler fill and drain valve and add the Multiseal product to the system.
Create an operating pressure with compressed air.
Heating systems: 1.5–2 bar, domestic water pipes: 6 bar, gas pipes: 4 bar.
Follow the instructions and notes on the respective Multiseal products!
After use, thoroughly rinse the pressure container and hose with water.
We reserve the right to make technical changes!



Multiseal® drip pan

for Multiseal Packet 2 (membrane pump), Multiseal G 20 or Multiseal G 21 J.
Drip pan for collecting Multiseal sealants



Multiseal® cleaning ball range

20 mm (½") to 200 mm

Multiseal® cleaning ball set

(10 balls, 2 balls of each size: 20, 25, 30, 35 and 40 mm)

The cleaning balls are used for the clean removal of residual products from typical gas systems



Multiseal® shut-off bladders

TB 1/ø 30 mm to TB 58/ø 150–200 mm

Reliable and fast shut-off for waste water and sewer pipes



TB 1 (ø = 30 mm)



TB 122 (ø = 31–50 mm)



TB 3 (ø = 50–80 mm)



TB 34 (ø = 75–100 mm)



TB 46 (ø = 100–150 mm)



TB 58 (ø = 125–200 mm)



Multiseal® test plug

RTS 35 mm to RTS 100 mm for the secure closing off of pipes



DN 35



DN 42



DN 50



DN 75



DN 100



Liquid sealant for sealing gas pipes with threaded joints with hemp

Multiseal® Gas

Sealing liquid for the subsequent sealing of threaded joints with hemp in inner gas ducts. Multiseal Gas is a plastic-solvent mixture. Steel pipes with threaded joints with hemp can be sealed.

Mixing ratio: Undiluted

| Packaging | Art. No. | EAN |
|-----------|----------|---------------|
| 10 liters | 8024100 | 5708923800381 |

DIN DVGW Registration number
NG-5153BL0184

ÖVGW Registration number
G 2.662

SVGW Registration number
15-027-7

USER INSTRUCTIONS:

In the case of mixed installations, galvanised materials, copper, plastic and press fittings, Multiseal Gas does not attack the plastic seals. Multiseal Gas may also be passed through pressed pipes.

Processing: The requirements of the DVGW work sheet G 624 "Subsequent sealing of gas lines with threaded connections" apply to the processing. Ensure sufficient ventilation.



1. Determine the volume of gas leaking based on DVGW TRGI 2008

Multiseal Gas can be used with reduced usability. Usability is reduced when the volume of the gas leak is between 1 and less than 5 litres per hour at operating pressure.



2. Checking the gas line

Remove the gas counter and dismantle all gas devices. Fit shut-off valves on all line endpoints. Remove shut-off plugs on blind pipes still under gas pressure and replace them with shut-off valves. Make sure the shut-off valves are firmly secured to the gas line. Carry out a load test as per G 624 (3 bar for 3–5 minutes)



3. Re-determine the volume of gas leaking based on DVGW TRGI 2008 (as in 1.)



4. Cleaning the line

To clean the internal gas lines of dust, rust and scale, connect a reinforced pressure hose, ending in a dust filter, preferably in the open air, to the lowest point of the line where the gas meter is located. Blow out the gas pipes with compressed air or an inert gas.

FILLING A LEAKY GAS PIPE

Thoroughly shake the Multiseal Gas canister before use!

To fill a leaky gas pipe, use a compressor with a capacity of at least 250 l/min. or 1 bottle of e.g. nitrogen.

1. Slowly fill the line from the lowest point below the lowest shut-off valve. Use a membrane pump that can be operated with nitrogen or compressed air for filling. Make sure there is sufficient Multiseal Gas.

2. Carefully purge the gas pipe system from the lowest to the highest and remotest shut-off valve installed in place of the gas appliances. Place the end of hoses from the shut-off valves in ventilation buckets to catch residual Multiseal Gas when purging.



3. After proper filling, pressurise the line to 4 bar plus 1 bar per 10 m height of the installation to be sealed. This will press the sealant into the leaking threaded connections. The Multiseal Gas has to be kept under pressure in the gas system in this way for at least 30 minutes.

4. In order to be able to use the filling device together with the pressure pump during the 30-minute operating period, it is permissible to connect a nitrogen pressure pad of 1–2 L volume (max. 4 bar) at the high point of the line to maintain pressure.



EMPTYING THE LINE

Carefully relax the filling pressure under which the line stands. Then empty the line via the lowest point below the lowest shut-off valve. For this purpose, open all the shut-off valves from the top to the lowest shut-off valve.



Change the setting of the membrane pump on the four-way mixer from "pump" to "suction".

CLEANING WITH CLEANING BALLS

IMPORTANT: Disconnect the ventilation buckets and the purging hoses from the shut-off valves before cleaning the gas system with the cleaning balls!

If no sealant runs out of the line, each line is now cleaned by means of shooting through a sponge rubber ball with a diameter at least 10% larger than the line cross section. The sponge balls are inserted at the shut-off valve points and forced through the line with nitrogen or compressed air starting at the highest shut-off valve. The balls push the remaining sealant in front of them and transport it back into the filling container. The sponge-ball cleaning must be done at least twice to remove excess product residue. Depending on the circumstances, the cleaning process may have to be repeated more than once.

The product can be re-used.

Contaminated Multiseal Gas 2000 can be cleaned by means of a sieve.



DRYING

The drying is done using a drying fan. To do this, reconnect ventilation buckets and hoses to the shut-off valves. Make sure the purging hoses are secured in the ventilation buckets so that the product does not contaminate the environment. The drying fan must be set up with no obstacles so that the drying air can be sucked in unhindered. If performance drops, clean the filter. Drying time is about 1 hour and it is designed for pipe lengths of 25 m (1"). Gas lines with a bigger nominal diameter require a longer drying time.

The new drying fan reduces the drying time by heating the air-flow. Even after drying, Multiseal Gas remains viscid in the threads. A leak test based on DVGW-TRGI 2008 must then be carried out.

ATTENTION!

Multiseal Gas dries quickly. It is possible clean with water within half an hour. Multiseal Gas that is starting to dry can be removed with a solvent.



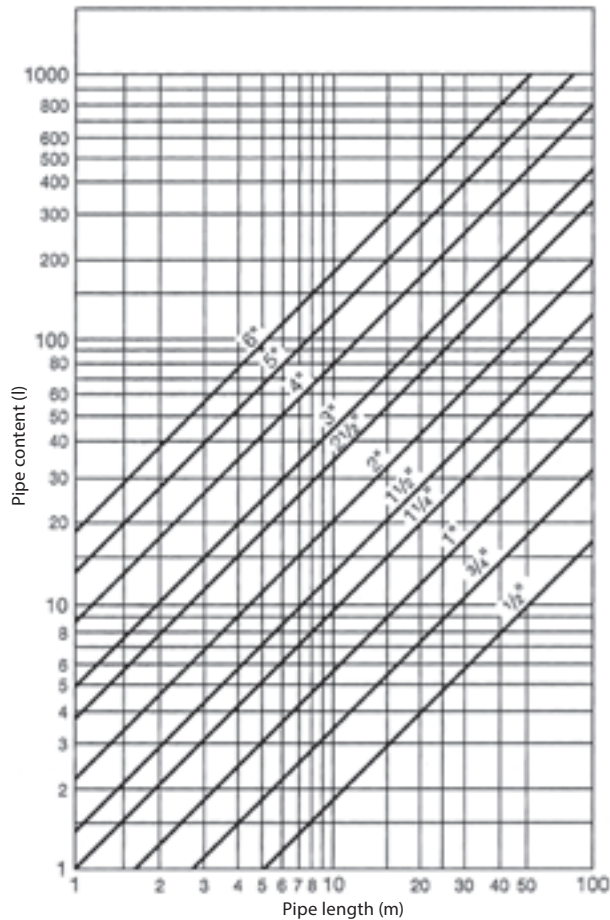
STARTING UP THE GAS INSTALLATION:

After a successful leak test, the line system may now be put into operation based on DVGW-TRGI 2008. Please follow the documentation on quality assurance.

*Our information corresponds with our current experiences.
We reserve the right to make technical changes.
Safety data sheets can be downloaded on www.unipak.dk*



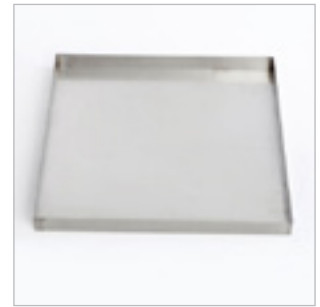
PIPE CONTENT OF THREADED PIPE



Multiseal® SPECIAL ACCESSORIES:



Multiseal® cleaning ball range
ranging from 20 mm to 200 mm
Cleaning balls for removing residual product from gas lines



Multiseal® drip pan
for Multiseal gas, Packet 2 (membrane pump, complete) and Multiseal G 20 or Multiseal G 21 J

◀ **Please order an additional 10 litres of Multiseal Gas for the equipment and hoses!**

MULTISEAL GAS SAFETY INFORMATION:

Observe the usual precautions when handling chemicals!

- **Keep out of the reach of children!**
- **Do not mix with other gas sealants!**
- **Short drying time**
- **Exposure time: 30 minutes**
- **10-litre packaging**
- **Storable for 2 years**



According to DVGW TRGI 2008:
home-owners should have their gas pipelines checked every twelve years for suitability for use or leakage!

Training sessions will be arranged at our premises or at the worksite. A certificate obtained in this way is valid as a certificate of competence in accordance with DVGW worksheet G 624!

Please contact us for more information on this.

Your Unipak team

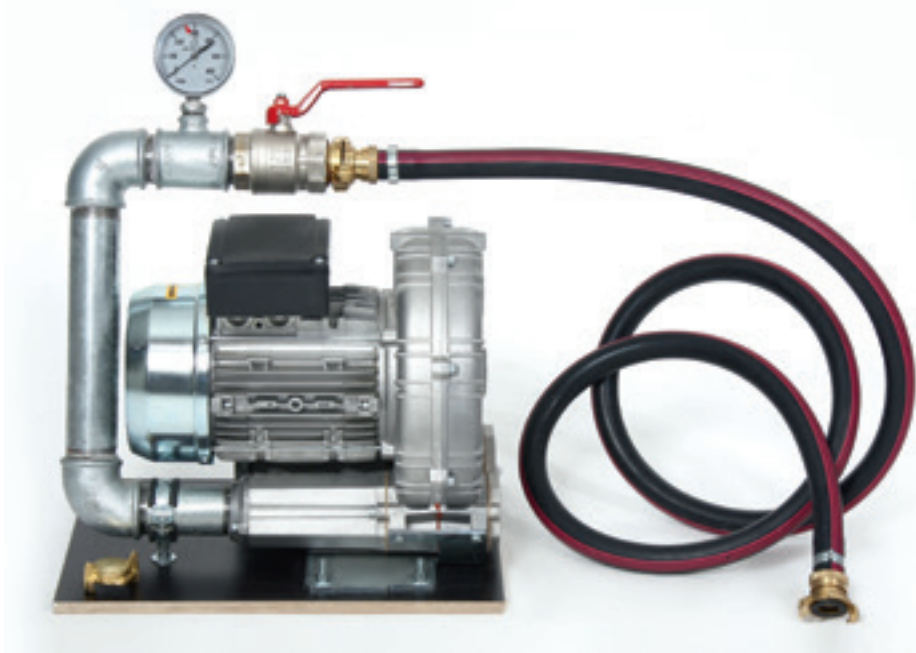
Complete gas kit
consisting of: **Packets 1-5**



Accessories Packet 1
Filling container complete



Accessories Packet 2
Membrane pump, complete



Accessories Packet 3
Drying fan



Accessories Packet 4
Ventilation bucket (4 No.)



Accessories Packet 5
Transport box



Multiseal Heizboy

TECHNICAL DATA SHEET NO. 1

Cleaning underfloor heating systems

1. Flush with water, line by line.
2. Add Multiseal HR in a ratio of 1 l Multiseal HR to 100 l of heating water.
Operate the heating system at maximum 60 °C for 3 days.
3. Empty the system and rinse line by line.
4. Then add Multiseal K 32 in a ratio of 1 l Multiseal K 32 to 100 l of heating water.
5. Check with Multiseal test.
6. After 6–8 weeks, recheck the water and check for contamination.
7. Multiseal K 32 removes any remaining impurities and lime scale. These can settle in the boiler and lead to reduced heat transfer (boiler damage).
8. If necessary, rinse the system once again.
9. Then refill with Multiseal K 32 and test.
10. Should heat transfer problems occur, clean the boiler separately with Multiseal HR.
11. With heavy scale and rust contamination, increase the concentration of Multiseal HR.

TECHNICAL DATA SHEET NO. 2

Sealing a leaking heating system

Detecting a leak:

1. Check the pressure gauge. Filling the heating system twice a year is normal. If it has to be filled several times, there is a leak.
2. Water under the boiler. Water in the cold boiler
3. Dripping pipe
4. Wet stains on the floor
5. Check the expansion vessel and visually inspect the heating system.

Pump sealant into the heating system:

1. Determine the water content using the calculation table (pp. 40–42).
2. Calculate the amount of sealant based on the water content. 1.5 l to 100 l heating water for Multiseal, Multiseal Heat S, M, L, and XL.
All others: 1 l to 100 l heating water.
3. Drain approx. 20 l of heating water out of the system and collect.
4. Shake the sealant and add with:
 - a. Multiseal G 20 or Multiseal G 21 J with compressed air
 - b. Plastic drilling machine with hose.
 - c. Discharge pump (remove the suction filter from this!)
5. Fully open heater valves and mixer devices.
6. Refill the heating system to operating pressure.
Top up with the collected water if necessary.

Cleaning:

1. **IMPORTANT!** Rinse circulation pumps at the bleed screw and measure the pH value (10.5–11 pH). (With Multiseal Heat S, M, L, and XL)

TECHNICAL DATA SHEET NO. 3

Sealing a domestic water line

1. Look for stains on wall, ceiling and floor, indicating a leak.
2. Test with a discharge pump to see if the hot or cold water pipe is leaky and measure the water loss (discharge pump or water meter).
3. Drain the line and measure the content. Blow out with compressed air.
4. Close the line ends so that the leak is blown free of water (about 15 minutes).
5. Fill with the Multiseal G 21 J pressure container and Multiseal Water S, M and L undiluted. Bleed the tap valves and fittings. Remove aerators and wipe off any excess sealant immediately. If necessary, disconnect the pipeline and install a shut-off valve.
6. Pressurise the system to 5–7 bar with Multiseal G 21 J Pressure container with compressed air.
7. Leave for 3 days.
8. Drain and recollect Multiseal Water S, M and L and rinse the line with water. Keep rinsing until the pH value corresponds to that of drinking water, i.e. pH 7–7.5.
9. Re-fit all connections.

TECHNICAL DATA SHEET NO. 4

Sealing of internal drain pipes in an apartment

1. Clean with high-pressure jet (Kärcher).
2. Shut off with Multiseal shut-off bladder.
3. Do water loss test with water. The water loss volume should not exceed 70% of the line section to be sealed within 15 minutes.
4. Fill the drain lines with Multiseal Drain.
Mixing ratio up to 1:5. Leave in for at least 1 day.
5. Drain by opening the Multiseal shut-off bladder.
6. Rinse with water
7. Install disconnected equipment.

TECHNICAL DATA SHEET NO. 5

Sealing of sewer pipes as per DIN 1986-3

1. Clean with high-pressure cleaner (Kärcher).
2. Shut off with Multiseal shut-off bladders and test for water loss. The water level should be 2 m above the lowest apex of the pipes.
The water loss quantity shall not exceed 70% of the volume of the pipe section to be sealed within 15 minutes.
3. Use an inspection camera to detect the leak site.
4. Insert hoses for both components as far as to the Multiseal shut-off bladder.
5. Pump in Multiseal Sewer (the first component).
Leave the product in the sewer line for 1 hour.
6. Pump out Multiseal Sewer.
7. Open and close the shut-off bladder to divert the rest of Multiseal drain and close again.
8. Add the second component, Multiseal HC 60.
Leave this in the sewer tube for 1 hour, too.
9. Pump out Multiseal HC 60.
10. Open the shut-off bladder to divert the rest of Multiseal HC 60.
11. Close the shut-off bladder.
12. Refill with Multiseal Sewer.
Leave the product in the system for 1 hour.
13. Pump out Multiseal Sewer.
14. Open the shut-off bladder and close again to divert the rest of Multiseal Sewer.
15. Fill the sewer line with Multiseal HC 60.
Leave it in for 1 hour.
16. Pump out Multiseal HC 60.
17. Open shut-off bladder to divert the rest of Multiseal HC 60
18. Rinse the sewer pipe with water.
19. Close the shut-off bladder.
20. Pressure test as per DIN 1610 after allowing the product to cure for 12–24 hours.

TECHNICAL DATA SHEET NO. 6

Sealing of individual pipe strands in a heating system

Underfloor heating pipes or rising strands can be sealed separately. The leaking pipe (do a pressure test beforehand) is connected to a Multiseal Heizboy. In this way, the sealant Multiseal Heat S or Multiseal Heat M is circulated in a heated circuit. Keep the circulation and heating on for at least 2 days at normal operating pressure. Then drain, rinse, and fill the system with heating water and return to operation.

Mixing ratio:

1.5 L Multiseal to 100 litres of heating water.

IMPORTANT:

The above procedure does not work with press fittings!!!

In pressed lines, the defective strand can be cut off and separated with a heat exchanger. In this separate line section, the leak can be permanently sealed with Multiseal Heat 30 E or Multiseal Heat F. In pressed systems, the sealants must remain in the system!

Mixing ratio:

1 L Multiseal Heat F or Multiseal Heat 30 E to 100 litres of heating water.

CAST-IRON RADIATORS

| HK height (mm) | HK depth (mm) | HK links | Multiplier (litres) | Volume (litres) |
|-------------------|---------------|----------|---------------------|-----------------|
| 280 | 250 | x | 0.9 | = |
| 430 | 70 | x | 0,4 | = |
| | 110 | x | 0.6 | = |
| | 160 | x | 0,8 | = |
| | 220 | x | 1.1 | = |
| 580 | 70 | x | 0.5 | = |
| | 110 | x | 0.8 | = |
| | 160 | x | 1.1 | = |
| | 220 | x | 1,3 | = |
| 680 | 160 | x | 1,2 | = |
| 980 | 70 | x | 0.8 | = |
| | 160 | x | 1,5 | = |
| | 220 | x | 1,9 | = |
| Sub-total: | | | | |

STEEL RADIATORS

| HK height (mm) | HK depth (mm) | HK links | Multiplier (litres) | Volume (litres) |
|---------------------|---------------|----------|---------------------|-----------------|
| 300 | 160 | x | 0.8 | = |
| | 250 | x | 1.0 | = |
| 450 | 110 | x | 0.8 | = |
| | 160 | x | 1.0 | = |
| | 220 | x | 1.2 | = |
| 600 | 110 | x | 0.9 | = |
| | 160 | x | 1.2 | = |
| | 220 | x | 1.6 | = |
| 1000 | 110 | x | 1.2 | = |
| | 160 | x | 1.7 | = |
| | 220 | x | 2.4 | = |
| Sub-total 2: | | | | |

PANEL RADIATOR

| HK height (mm) | Type | HK length (m) | Multiplier (litres) | Volume (litres) |
|---------------------|------|---------------|---------------------|-----------------|
| 350 | 10 | x | 2.7 | = |
| | 11 | x | 2.7 | = |
| | 21 | x | 5.4 | = |
| | 22 | x | 5.4 | = |
| | 33 | x | 8.1 | = |
| 500 | 10 | x | 3.5 | = |
| | 11 | x | 3.5 | = |
| | 21 | x | 7.0 | = |
| | 22 | x | 7.0 | = |
| | 33 | x | 10.5 | = |
| 600 | 10 | x | 4.0 | = |
| | 11 | x | 4.0 | = |
| | 21 | x | 8.1 | = |
| | 22 | x | 8.1 | = |
| 900 | 10 | x | 5.6 | = |
| | 11 | x | 5.6 | = |
| | 21 | x | 11.3 | = |
| | 22 | x | 11.3 | = |
| | 33 | x | 16.9 | = |
| Sub-total 1: | | | | |

PIPES

| Pipe nominal width DN | Pipe nominal width (Inch) | Pipe length (m) | Multiplier (litres) | Volume (litres) |
|-----------------------|---------------------------|-----------------|---------------------|-----------------|
| 10 | 3/8" | x | 0.12 | = |
| 15 | 1/2" | x | 0.20 | = |
| 20 | 3/4" | x | 0.37 | = |
| 25 | 1" | x | 0.58 | = |
| 32 | 1 1/4" | x | 1.02 | = |
| 40 | 1 1/2" | x | 1.38 | = |
| 50 | 2" | x | 2.21 | = |
| 65 | 2 1/2" | x | 3.74 | = |
| 80 | 3" | x | 5.15 | = |
| 100 | 4" | x | 8.76 | = |

| CU pipeline | Pipe length (m) | Multiplier (litres) | Volume (litres) |
|--|-----------------|---------------------|-----------------|
| 10 x 1.0 | x | 0.05 | = |
| 12 x 1.0 | x | 0.08 | = |
| 15 x 1.0 | x | 0.13 | = |
| 18 x 1.0 | x | 0.20 | = |
| 22 x 1.0 | x | 0.31 | = |
| 28 x 1.5 | x | 0.49 | = |
| Sub-total: | | | |
| Total | | | = |
| + heating boiler contents and expansion vessel | | | = |
| = total content | | | = |

Underfloor heating:

Pure underfloor heating with no radiators
per 100 m² living area = approx. 150 litres of heating water.

Sub-total 1+2 transfer:

Total content 100 = result
Result x 1.5 = for sealant Multiseal Heat S/Heat M/Heat L/Heat XL =
The pH value for the above products must be pH 10.5-11
Result x 1 = for sealant for Multiseal Heat 30 E/F/HR/K 32 = average amount

You can download an Excel sheet for calculating and entering the values free of charge on our website at www.unipak.dk.

DOSING INSTRUCTIONS

The dosage for the heating system can, if not known, be determined from the table below. New heating systems have only a low water content (if necessary, meter out manually).

Control option: If dosed correctly, the pH value is between 10.5 and 11.

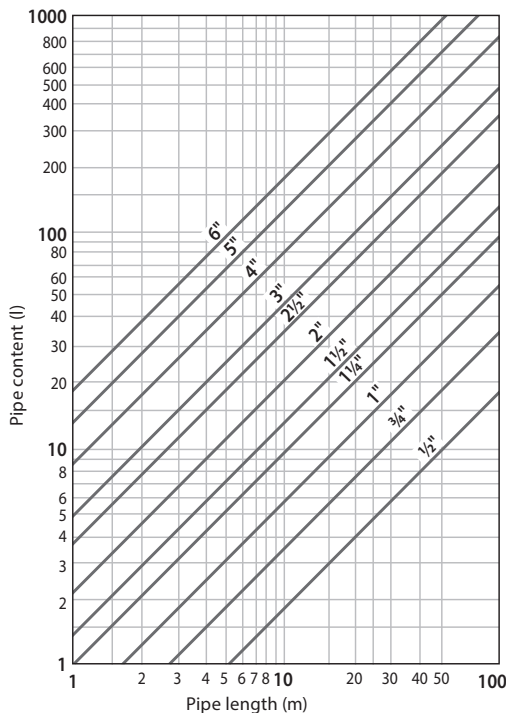
For conventional heating systems: Systems with mostly:

| | |
|--|---|
| Convectors up to approx. 38 KW = 4 litres of sealant up to approx. 77 KW = 8 litres of sealant up to approx. 116 KW = 11 litres of sealant up to approx. 155 KW = 14 litres of sealant | Radiators up to approx. 17 KW = 4 litres of sealant up to approx. 33 KW = 8 litres of sealant up to approx. 50 KW = 11 litres of sealant up to approx. 66 KW = 14 litres of sealant |
| Panel radiators up to approx. 23 KW = 4 litres of sealant up to approx. 46 KW = 7 litres of sealant up to approx. 70 KW = 11 litres of sealant up to approx. 93 KW = 14 litres of sealant | Long distance line up to approx. 12 KW = 4 litres of sealant up to approx. 23 KW = 7 litres of sealant up to approx. 35 KW = 10 litres of sealant up to approx. 46 KW = 13 litres of sealant |
| Underfloor heating up to approx. 130 m ² ≅ 3 Litres of sealant up to approx. 260 m ² ≅ 6 Litres of sealant up to approx. 390 m ² ≅ 9 Litres of sealant up to approx. 520 m ² ≅ 12 Litres of sealant | |

Dip the indicator sticks and read them wet
 In the case of weakly concentrated solutions, dip until no more colour changes occur (1–10 min.).

FOR THE PRODUCTS: MULTISEAL HEAT S, MULTISEAL HEAT M, MULTISEAL HEAT L AND MULTISEAL HEAT XL

PIPE CONTENT OF THREADED PIPE



FOR THE PRODUCTS: MULTISEAL WATER S, MULTISEAL WATER M, MULTISEAL WATER L AND MULTISEAL GAS

DETERMINING THE WATER CONTENT

Multiseal HR: Mixing ratio 1:100 or greater

Multiseal R13: Mixing ratio: undiluted or diluted with a maximum of 2 parts water.

Multiseal HR and Multiseal R13 have a pH value of approx. pH 2.

At approx. pH 6, the effect is used up and the product is consumed.

Re-dosing must be done or a new mixture should be added.

For conventional heating systems: Systems with mostly:

| | |
|---|---|
| Convectors up to approx. 38 kW = 255 litres of system water up to approx. 77 kW = 500 litres of system water up to approx. 116 kW = 730 litres of system water up to approx. 155 kW = 930 litres of system water | Panel radiators up to approx. 23 kW = 250 litres of system water up to approx. 46 kW = 445 litres of system water up to approx. 70 kW = 700 litres of system water up to approx. 93 kW = 880 litres of system water |
| Radiators up to approx. 17 kW = 270 litres of system water up to approx. 33 kW = 500 litres of system water up to approx. 50 kW = 730 litres of system water up to approx. 66 kW = 900 litres of system water | Long distance line up to approx. 12 kW = 240 litres of system water up to approx. 23 kW = 450 litres of system water up to approx. 35 kW = 670 litres of system water up to approx. 46 kW = 850 litres of system water |
| Underfloor heating up to approx. 130 m ² ≅ 200 litres of system water up to approx. 260 m ² ≅ 400 litres of system water up to approx. 390 m ² ≅ 590 litres of system water up to approx. 520 m ² ≅ 750 litres of system water | |

Dip the indicator sticks and read them wet
 In the case of weakly concentrated solutions, dip until no more colour changes occur (1–10 min.).

FOR THE PRODUCTS: MULTISEAL HR AND MULTISEAL R 13

DOSING INSTRUCTIONS

The dosage for the heating system can, if not known, be approximated as follows.

For conventional heating systems: Systems with mostly:

| | |
|---|---|
| Convectors up to approx. 38 KW = 3 litres of sealant up to approx. 77 KW = 5 litres of sealant up to approx. 116 KW = 7 litres of sealant up to approx. 155 KW = 9 litres of sealant | Radiators up to approx. 17 KW = 3 litres of sealant up to approx. 33 KW = 5 litres of sealant up to approx. 50 KW = 7 litres of sealant up to approx. 66 KW = 9 litres of sealant |
| Panel radiators up to approx. 23 KW = 3 litres of sealant up to approx. 46 KW = 5 litres of sealant up to approx. 70 KW = 7 litres of sealant up to approx. 93 KW = 9 litres of sealant | Long distance line up to approx. 12 KW = 3 litres of sealant up to approx. 23 KW = 5 litres of sealant up to approx. 35 KW = 7 litres of sealant up to approx. 46 KW = 9 litres of sealant |
| Underfloor heating up to approx. 130 m ² ≅ 2 litres of sealant up to approx. 260 m ² ≅ 4 litres of sealant up to approx. 390 m ² ≅ 6 litres of sealant up to approx. 520 m ² ≅ 8 litres of sealant | |

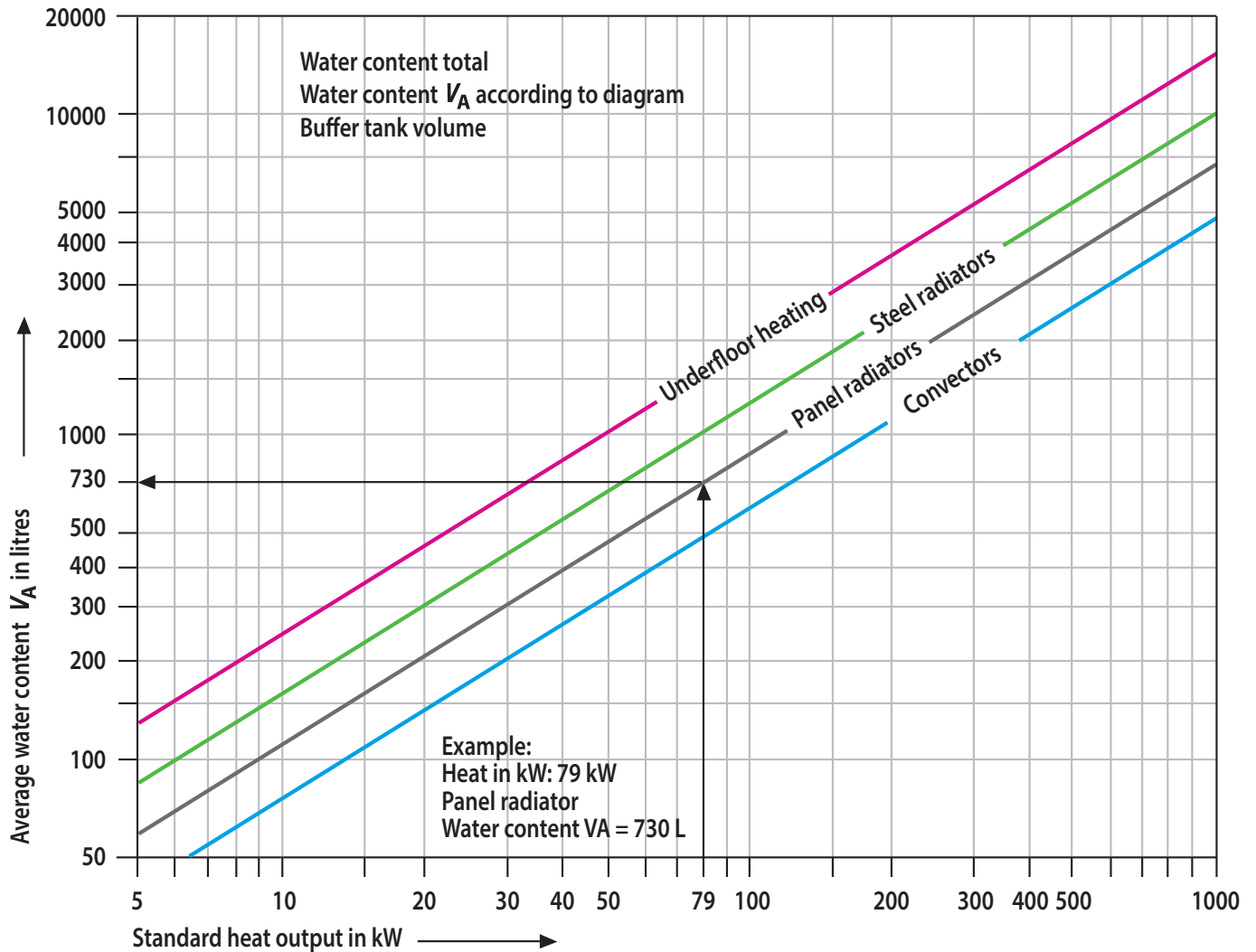
FOR THE PRODUCTS: MULTISEAL HEAT 30 E AND MULTISEAL HEAT F

CALCULATING PIPE CONTENTS

| DN | d (mm) | di (internal diameter) (mm) | Volume, litres per m |
|-----|--------|-----------------------------|----------------------|
| 50 | 50 | 44 | 1.6 |
| 70 | 75 | 69 | 3.7 |
| 100 | 110 | 101.4 | 8.1 |
| 125 | 125 | 115.2 | 10.4 |
| 150 | 160 | 147.6 | 17.1 |

FOR THE PRODUCTS: MULTISEAL SEWER, MULTISEAL DRAIN AND MULTISEAL HC 60

WATER CONTENT V_A OF A HEATING SYSTEM



FOR HEATING PRODUCTS

Specialise in a high-quality alternative method for repairing hidden leaks in heating systems, underfloor heating, water lines, sewers and much more besides!

This replaces the conventional method of having to break up walls, floors or other structural components. Become a certified Multiseal specialist and offer your customers an attractive service. The training is conducted in our specialized classrooms at Unipak in Galten. The training comprises both theory and practice.



YOUR BENEFITS FROM A MULTISEAL TRAINING COURSE:

A new market: Refurbishment method without costly consequential repairs and break-up work. Biggest product range on the market with sealants for heating systems, underfloor heating, drinking and utility water, waste water and sewers, swimming pools and solar and geothermal systems.

A comprehensive introduction to the requisite technical equipment and training in how to use this equipment correctly are included in the course.

A user certificate and promotional material for use on vehicles and websites are issued at the completion of the course.

Multiseal – documented quality since 1979.

TRAINING COURSE:

Theoretical and practical training comprising the use of Multiseal products in the following areas:

- Heating systems
- Underfloor heating systems
- Water lines
- Waste pipes and buried sewer lines
- Swimming pools
- Solar and geothermal systems

Course duration: Approx. 9 am – 3 pm: enquire at Unipak about course dates. The course includes a practical process, course materials, pamphlets and promotional material, as well as meals and refreshments.

Unipak[®]

Unipak A/S
Marktoften 3C | 8464 Galten | Denmark
Tel. +45 8626 1177