



## Installation, Operation and Maintenance Manual

### **KWT Stoplog Assemblies**

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## Foreword:

All products are designed and constructed according to the specifications as written in the quotation and order confirmation.

Never use the product for any other means or applications than stated. This could result in premature failure of the product. Without exception, the products are not designed to bear or carry any loads of the civil construction.

KWT products will be virtually 100% watertight at their working pressure if installation has been carried out correctly. Better sealing can be expected at applications with on seated pressure. The responsibility of watertight installation lies primarily with the installing contractor.

Phrases in this manual which need special attention are marked as follow:



- Gives the user suggestions and tips to carry out instructions more easily.
- Remarks, with additional information.
- Informs user of possible problems



- Health and Safety Warning

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Foreword

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## 1. Introduction

### 1.1 Product

#### **General**

The KWT stoplog assembly is manufactured from extruded aluminium profiles and available in various types, depending on duty. The stoplogs are supplied with an aluminium lifting beam to allow placing and removing of the stoplogs. The stoplog frames are fitted with EPDM sealing tape to seal between the frame and walls (wall mounting models). The frames can also be manufactured to cast into rebates.

#### **Applications and functionality**

The stoplogs are placed into the frame to isolate water for maintenance purposes. They can be used individually or stacked depending on the volume of water to be held back. Never exceed the designed water pressure on the stoplogs. Use the stoplogs only in a free flow application at ambient conditions – 20 up to 40 degrees Celsius. The stoplogs are suitable for applications involving Waste Water plants, pumping stations, sewage systems etc.

#### **Installation & operation stipulations:**

Read this instruction guideline carefully before installing the stoplogs.

Ensure you have taken all the necessary and correct safety precautions before starting. All legal and local regulations have to be followed precisely.

Installation of the stoplogs should be only be carried out by skilled and therefore qualified personnel only. In case of any doubt, please contact the supplier immediately.

### 1.2 Technical specifications:

Materials of construction	
Stoplog	Aluminium F27
Stoplog Frame	Aluminium F27
Lifting Beam	Aluminium F27
Sealing	Rubber, EPDM
<b>Duty</b>	On or off seated pressure

Table 1: Technical specifications.

## **2. Safety**

### **2.1 General**

In this chapter all safety precautions of the stoplog are discussed. It is vital that all personnel who operate the stoplogs are familiar with the contents of this chapter.

The most significant risks involving installation and operation of the stoplogs are mentioned in paragraph 2.2. In paragraph 2.3 please adhere to the following safety precautions. All personnel must also comply with the installing contractor's safety policies.

### **2.2. Safety, Health and Environmental Risks**

The following risks should be regarded:

- Danger of trapping of fingers and hands when mounting or operating.
- Electrical dangers during mounting or maintenance
- Falling during lifting.

### **2.3 Other Safety Precautions**

- Unsafe situations or defects should be reported to the responsible person.
- Make sure that the power supply to any actuators fitted has been isolated during installation or maintenance.
- Qualified personnel only should carry out electrical and mechanical work.
- Wear all necessary P.P.E.

## **3. Transport and storage**

### **3.1 Transport:**

The stop logs must be moved horizontally on a pallet of matching size. The stoplogs can be lifted by means of suitable lifting slings and a lifting bar matching the width of the stop logs. When lifting, only use the lifting points and lifting beam supplied.

### **3.2 Storage:**

For storage before installation, the stoplogs do not require any special storage requirements, except that the stoplogs must be stored in such a way that they do not cause a risk to safety.

Once installed, when the stop logs and lifting beam are not in use, they must be stored so that the seals do not become damaged, and they do not block access or cause a risk to safety. If required, a storage rack is available from Aquatic Control Engineering Ltd to safely store the stop logs.

## 4. Installation and Maintenance

### 4.1 General

In this chapter it is discussed how the Stoplogs should be taken into operation. In this manual, the installation with chemical anchor bolts is discussed. In the paragraph 4.3 the installation is explained step by step. In paragraph 4.5 the required actions prior to operation are described.

#### **Warranty**

It is the responsibility of the purchaser to inspect the supplied KWT products for possible defects and that all ordered items are present at arrival. Missing parts or defects should be reported to KWT immediately, and the product can not be installed until these are rectified. The warranty will be deemed void if:

- The items supplied are not installed in the manner set out in this manual
- The products are modified in any way without the prior approval of the supplier/manufacturer
- The items are damaged due to mis-use, vandalism or overload.

All claims for warranty are subject to a full inspection by the supplier/manufacturer. KWT maintain the right to refuse claims for warranty where the inspection proves the damage to be the fault of another party.

#### **Safety Aspects:**

The installing contractor is considered to be acquainted with the safety procedures as mentioned in chapter 2.

### 4.2 Preparation prior to mounting

#### **Check the mounting supplies**

1. EPDM compound (15mm thick)
2. EPDM glue (in a small canister)
3. A white pencil
4. Tube of copper grease
5. A drill can (for making holes in the EPDM compound)
6. Chemical anchor capsules, threaded rods, hexagon nuts and special bolts
7. Countersunk bolts, threaded sockets, special chemical anchors and drill adaptor (only if using a flush invert)

#### **Check the concrete wall**

1. Check the concrete wall before installing the stoplogs, to ensure the wall is smooth, checking all necessary dimensions.
2. Correct any deviation. Any gravel pockets must be filled out and concrete remains must be removed.

**IMPORTANT:**  
**Tolerance differences of the concrete wall max. 2mm per metre.**

#### 4.1.3 Applying the EPDM compound

1. Before placing the EPDM compound onto the back of the frame, ensure it is free of dirt and grease.
2. Mark the mounting holes with the white pencil, so you will be able to drill the compound for the holes, which now correspond with the existing holes in the frame.

3. Starting with the bottom frame, cut the EPDM seal tape slightly longer than required. The compound is self adhesive on one side. Remove the protection slip and fit the compound to the frame. Press seal compound firmly to fix. Repeat with the side frames.
4. Glue the corners together by using the provided EPDM glue. When not glued properly it can lead to leakage between the back of the frame and the concrete wall. Once cured, trim off excess seal.

**SAFETY WARNING- Make sure that contact with the EPDM glue to your skin and eyes is prevented. If this does occur, contact your doctor immediately.**

5. Grease the supplied drill can on the outside with the copper grease to prevent ripping of the compound. Attach to a suitable rotary drill.
6. Now cut the marked holes in the seal compound to correspond with the mounting holes in the frame.

#### 4.1.4 Positioning the stoplog frame

1. When using chemical anchors the stoplogs are removed from the frame.
2. The frame can be lifted using only the attached lifting points.
3. Place the stoplog frame directly in front of the opening, ensuring that the invert of the frame is level with the invert of the opening.
4. After positioning and levelling the frame, mark the mounting holes on the wall. Remove the frame and drill out holes to required depth. (Please note that if using a flush invert frame, this must be installed before the sides, please refer to drawing for details of special anchors.)
5. To ensure secure anchoring it is necessary to clean out the drill hole. (Blow from the bottom to the top of the hole.)

**NOTE:** If using a frame which is bolted to the base of the channel please follow instructions 4.1.5 before proceeding to 4.1.6. If the frame is bolted to the face wall, please proceed to 4.1.6.

#### 4.1.5 Installing Special mounting bolts

1. When using a frame which bolts to the channel base (Flush Invert) special countersunk bolts are used.
2. Place the special chemical anchors into the holes.
3. Attach the special drill adaptor into the threaded sockets, then attach drill adaptor into a suitable rotary drill. **Important: Do not use a hammer action drill as this will lead to resin escaping from the hole.**
4. Place the end of the threaded socket into a hole, then in one motion push the bar, whilst operating the drill, through the capsule. Stop the drill within 2-3 seconds of reaching the back of the hole to prevent resin escape.
5. Carefully remove the adaptor from the drill, ensuring not to move the socket.
6. Once the resin has cured sufficiently, remove the adaptor from the socket and repeat the above process for the remaining holes.
7. Re-position the stoplog frame and place countersunk bolts in the installed sockets. Tighten bolts and proceed with side frames as below.

#### 4.1.6. Installing the mounting bolts

1. Carefully place the anchor capsules into the drilled mounting holes.
2. Lift and reposition the stoplog frame over the opening and align the mounting holes.
3. Attach the supplied drill adaptor to one mounting bolt, then attach the adaptor to a suitable rotary drill. **Important: Do not use a hammer action drill, as this will lead to resin escaping from the hole.**
3. Starting with the bottom frame (if not already installed), place the end of the bolt in the hole, then in one motion push the bolt, whilst operating the drill, through the capsule. Stop the drill within 2-3 seconds of reaching the back of the hole to ensure no resin escapes from the hole.
4. Carefully remove the socket from the drill chuck, ensuring not to move the bolt.

5. Once the resin has cured sufficiently, remove the socket from the bolt, then place a spring washer and penny washer, along with a nut onto the bolt, and tighten by hand. Repeat for all holes.

#### 4.1.7 Tightening the bolts

1. Carefully tighten the nuts, if the threaded rod turns, the chemical anchors have not cured sufficiently. If safe, tighten the stoplog frame against the wall, compressing the EPDM seal tape.
2. Be sure to tighten the nuts evenly and to recommended torque (for torque moment see data supplied with chemical anchors)
3. The space between front and back plate must be equal all over, otherwise the stoplogs will not function properly.

#### 4.1.8 Checking operation

1. Using the lifting beam, lift and lower the stoplogs into place, to ensure smooth operation (see operation, section 5). Adjust fixing bolts as necessary.

### **4.2 Rebate Mounting of stoplog frame**

#### 4.2.1 Installation

1. Do not remove the stoplogs from the frame, as this will ensure the frame remains straight. Lift and lower the unit into the rebate.
2. Position the frame in the centre of the channel, the invert of the frame must be level with the invert of the channel.
3. Pack the frame using suitable packers, until in the correct position and secure. Check that the frame is level and straight.
4. Once sure of levels and positioning, the frame can be grouted in using a suitable non-shrink grout.
5. The stoplogs should be cleaned to ensure that any grout remains are removed.
6. Once the grout has fully cured the stoplogs can be operated to check good operation (see operation, section 5).

#### 4.3 Wet Commissioning

1. Before the stoplogs are commissioned, check all mounting bolts have been tightened evenly, to recommended torques supplied, and check the stoplogs operate in dry conditions.
2. Slowly expose the stoplogs to the water and check for a good seal. To remove the stoplogs, see operation, section 5.

## 5. Operation

### 5.1 General

The operation of the KSA is discussed in paragraph 5.2. In paragraph 5.3 possible failures, the causes and methods for solving

#### **Safety issues:**

Before any operation is carried out, all personnel must be familiar with all safety considerations, as specified in section 2.

Due to the dimensions of the stoplogs and the water pressure exerted on the stoplogs when isolating the flow, lifting beams have been supplied, to be used with a davit arm.

### 5.2 Operation

#### **Setting up the lifting beam**

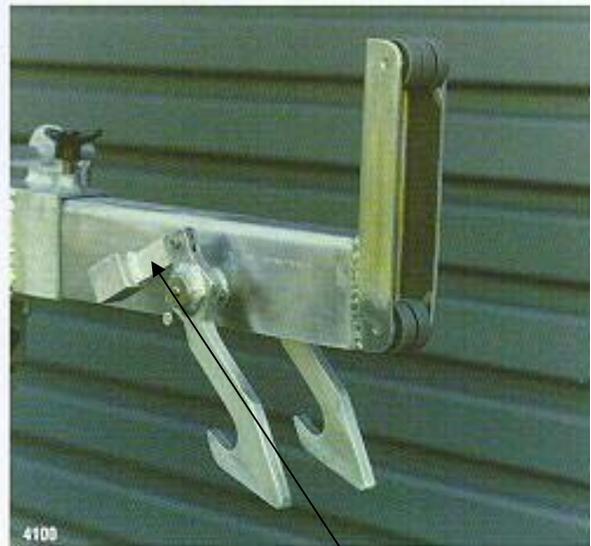
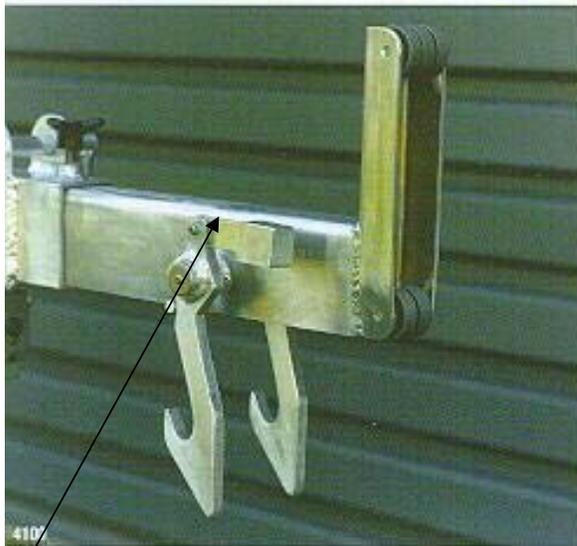
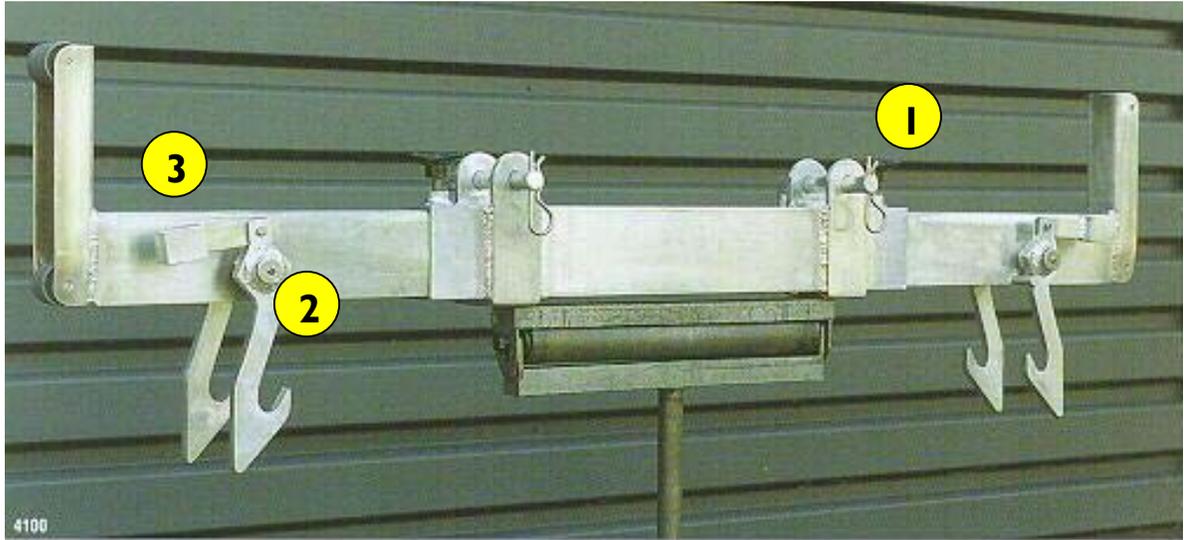
1. Using the lifting points (1) provided on the beam, attach the beam to a lifting davit at a suitable position for lifting the stoplogs.

#### **Placing the stoplogs**

1. Check all seals for damage and remove any obstructions in the channel and rebate.
2. Place the lifting beam counterweights (3) in Position (D) (see diagram below).
3. Using the davit, lower the lifting beam onto the stoplog and allow the hooks to engage. The hooks should engage automatically under the weight of the counterweights.
4. Lift the beam until the lifting chains are taught and move the stoplogs into position over the rebate and carefully lower into place. As the stoplogs are put into position, they will lower under their own weight and/or the weight of the water.
5. Once the stoplogs are in place, the chains will go slack.
6. Move the counterweights into the (U) position and lower the lifting beam until the lifting hooks disengage.
7. Lift the beam from the channel.
8. Repeat the process with the remaining stoplogs

#### **Removing the stoplogs**

1. Prepare the lifting beam as above.
2. Place the lifting beam counterweights in Position (D) (see diagram below).
3. Using the davit, lower the lifting beam onto the stoplog and allow the hooks to engage. The hooks should engage automatically under the weight of the counterweights.
4. Lift the beam until the lifting chains are taught.
5. Lift the stoplogs a little to allow the majority of the water to disperse, then lift the stoplogs from the channel.
6. Carefully place the stoplogs into the storage area, ensuring that the stoplogs are not placed on debris. As the stoplogs are placed on the ground, the chains will slacken. CAUTION: ENSURE THAT THE STOPLOGS ARE PLACED SECURELY ON THE GROUND TO AVOID RISK OF COLLAPSE
7. To remove the lifting beam, place the counterweights in the (U) position and lower until the lifting hooks disengage. Lift beam clear of stoplogs.
8. Repeat the process with the remaining stoplogs



Counterweight in D (down) position

Counterweight in U (up) position

### 5.3 Failure

Failure	Possible cause	Suggestion
Stoplogs are leaking between frame and wall	Wall not flat	Wall needs to be smoothed according NEN 6722 march 1998, article 8.6
	Sealing not glued correctly	Sealing has to be renewed and installed according the installation instructions.
Stoplogs are leaking between each other/ stoplogs and frame	Seal damaged	Please contact supplier
	Application specifications are exceeded.	Please contact supplier
	Dirt between seal and seal face area	Remove present obstacles
	Seal does not contact seal area. ⚠ Check if the frame has not been deformed due to a uneven wall.	Adjust bolts on front to obtain a better sealing.
Seal damaged	Storage area not suitable	Review storage methods

## 6. Cleaning and Maintenance

### 6.1 General

Due to the nature of the materials used, assuming that the stoplogs are stored correctly when not in use, they will require very little maintenance.

### 6.2 Maintenance & Inspection

The only maintenance tasks are as follows:

- 1- Occasional visual check of seals and plate to check for damage.

**NOTE: DO NOT GREASE ANY PART OF THE STOPLOGS UNLESS OTHERWISE INSTRUCTED. IF IN DOUBT CONTACT THE SUPPLIER.**

### 6.3 Storage

The stoplogs should be stored in a clean environment, free of any items which could damage the seals. They must also be stored in such a way that access is not hindered and that the stoplogs will not fall on personnel, access, equipment or the public.

Due to the design of the stoplogs, a stock of spares is not usually required. All spares can be obtained from:

Aquatic Control Engineering Ltd  
Phone 01777 249080  
Fax 01777 249280  
Email [info@aquaticcontrol.co.uk](mailto:info@aquaticcontrol.co.uk)  
Website [www.aquaticcontrol.co.uk](http://www.aquaticcontrol.co.uk)

## 7. Disposal

### 7.1 General:

When at the end of their life cycle, the stoplogs must be removed safely and in an environmentally responsible way.

### 7.2 Removal:

The stoplogs can be dismantled:

1. Remove stoplogs from frame
2. Loosen any nuts/ bolts and remove, if necessary cut concrete
3. Remove frame from the channel
4. Remove remaining materials.
5. Dismantle any additional items
6. Recycle/ dispose of materials

Appendix A Drawings

## Appendix B Instructions Chemical anchor bolts

### **Procedure for installing Chemical Anchor Attachments**

Please note that chemical anchor attachments in two forms are used for installing various elements of the KKS tilting weir. The following procedure must be referred to for details of this:

#### **Standard Chemical Anchors**

Comprising of:

- Stainless Steel Threaded Studding
- Chemical Anchor Capsules
- Drill Adaptor
- Stainless Steel Nuts, Washers and Spring Washers

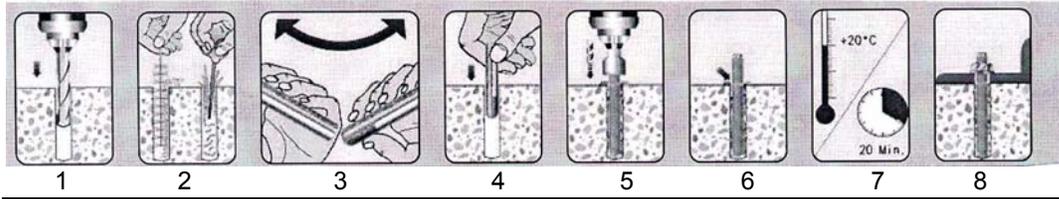
1. Drill Mounting hole in required position to the correct depth and diameter (please refer to details supplied with chemical anchors)
2. Blow out drilled hole using compressed air. (Warning, suitable eye protection to be worn)
3. Insert a chemical anchor capsule into each hole.
4. Attach a length of studding to the drill adaptor, then attach the adaptor to a rotary drill (NOTE: Do not use a hammer-action drill, as this will cause resin to escape from the hole)
5. Place the end of the threaded stud into the hole, then in one motion operate the drill at high speed, while pushing the stud through the anchor to the back of the hole. Once the back of the hole is reached, stop the drill to prevent resin escape.
6. Carefully remove the drill adaptor from the drill chuck, taking care not to move the stud.
7. Once the resin has sufficiently cured, remove the drill adaptor from the stud, however if the stud turns, leave the resin to cure further.
8. Replace the item to be mounted, then place a washer, a spring washer and a nut onto the stud and tighten by hand.
9. Once all required anchors have been installed and are fully cured, proceed to tighten the nuts evenly to the recommended torque. Where EPDM seal is used, this must be compressed evenly to ensure a good seal, however the frame must not be allowed to deform. For torque moment data, please refer to the anchor manufacturer's guidelines supplied with the anchors.

#### **Special Countersunk Socket Anchors**

Comprising of:

- Threaded sockets with internal thread
- Countersunk Bolts
- Chemical Anchors
- Special Drill Adaptor

1. Drill Mounting hole in required position to the correct depth and diameter for the threaded socket (please refer to details supplied with chemical anchors)
2. Blow out drilled hole using compressed air. (Warning, suitable eye protection to be worn)
3. Insert a chemical anchor capsule into each hole.
4. Attach the special drill adaptor to a threaded socket, then attach the adaptor to a rotary drill (NOTE: Do not use a hammer-action drill, as this will cause resin to escape from the hole)
5. Place the end of the threaded socket into the hole, then in one motion operate the drill at high speed, while pushing the socket through the anchor to the back of the hole. Once the back of the hole is reached, stop the drill to prevent resin escape.
6. Carefully remove the drill adaptor from the drill chuck, taking care not to move the socket.
7. Once the resin has sufficiently cured, remove the drill adaptor from the socket, however if the socket turns, leave the resin to cure further.
8. Replace the item to be mounted, then insert a countersunk bolt into the threaded socket.
9. Once all required anchors have been installed and are fully cured, proceed to tighten the bolts evenly to the recommended torque. Where EPDM seal is used, this must be compressed evenly to ensure a good seal, however the frame must not be allowed to deform. For torque moment data, please refer to the anchor manufacturer's guidelines supplied with the anchors.



Type	L mm	$\varnothing$	$\varnothing$ mm	t mm	max. Nm
M10	85	M10	12	90	20
M12	95	M12	14	110	40
M16	95	M16	18	125	80

Table 1 requisite dimensions and turn moments

Temperature in °C	Mins.	Hours
Above 20	10	-
10-20	20	-
0-10	-	1
-5- 0	-	5

Table 2 Stated Curing Times

## Appendix C High Density Polyethylene Properties

High Density Polyethylene (HDPE)

SIMONA  
plastics

CEE- Safety Data Sheet according to 91/155 EWG	
Trade name: SIMONA PE-HWU-B / SIMONA PE-HWU / SIMONA PE-HD-pipe	
1. Indications to the manufacturer	SIMONAAG    Tel: 06752 / 14-0 Teichweg 6    Fax: 06752 / 14-211 D-55606 Km
2. Composition / Indications to components	
Chemical characteristics	Polymer of ethylene
CAS-number	Not necessary
3. Possible dangers	Un-Known
4. First aid measures	
General comment	Medical aid is not necessary
5. Fire-fighting measures	
Suitable fire-fighting appliance dioxide	Water fog, foam, fire fighting powder, carbon dioxide
6. Measures in case of unintended Release	Not applicable
7. Handling and storage	
Handling	No special regulations must be observed
Storage	Unlimited good storage property
8. Limitation of exposition	
Personal protective equipment	Not necessary

**Continue Appendix C**

9. Physical and chemical characteristics.
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Phenotype:	Form:	Semi- finished product
	Colour:	Black
	Smell:	Not distinguishable
Change of state		
Crystallite melting point		126-130 °C
Fire point		Not applicable
Inflammation temperature		Approx. 350 °C
Density		0.95 g/cm <sup>3</sup>
10. Stability and reactivity		
Thermal decomposition		Above approx. 300 °C
Dangerous decomposition products		None
Besides carbon black also carbon dioxide and water as well as low molecular parts of PE will develop during the burning process. In case of incomplete burning also carbon monoxide may arise		
11. Toxic indications		
During several years of usage no effects being harmful for the health were observed		
12. Ecological indications		
No biodegradation, no solubility in water, no effects being harmful to the Environment must be expected.		
13. Waste-disposal indications		
Can be recycled or can be disposed of together with household rubbish ( acc. To Local Regulations)		
Waste key for the unused product		57128
Waste name		Waste of polyolefin
14. Transport indications		
No dangerous product in respect to / according to transport regulations.		
15. Instructions.		
Marking according to GefStoff V/EG		No obligation for marking
Water danger class		Class 0 ( self classification)
16. Further indications		
The indications are based on your to-days knowledge. They are meant to describe our Products in respect to safety requirements. They do not represent any guarantee of The described product in the sense of the legal guarantee regulations.		

## Appendix D Characteristic values of Material

Simona

Technical information for HDPE

	Test method DIN	Dimension	SIMONA PE-HWU
Density, method C	53479	G/cm <sup>3</sup>	0.950
Yield stress, Test piece 3	53455	N/ mm <sup>2</sup>	22
Elongation at yield stress	53455	%	9
Elongation at tear	53455	%	300
Tensile-E-Module	53457	N/ mm <sup>2</sup>	800
Impact strength ( std. Small bar)	53453	KJ / mm <sup>2</sup>	Without break
Impact strength when notched ( U-notch)	53453	KJ / mm <sup>2</sup>	12
Indentation hardness H 132 / 30	53456	N/ mm <sup>2</sup>	40
Shore hardness D	53505	N/ mm <sup>2</sup>	63
Crystalline melting range calorimetric	52328	°C	(126 –130)
Mean coefficient of thermal expansion	53752	k	1.8 .10
Heat conductivity	52612	W /mk	0.38
Behaviour in fire	4102		82
Dielectric strength. Method K 20 / 5D	53481	KV / mm	47
Volume resistance Annular electrode	53482	Ohm .com	>10
Surface resistance. Electrode A	53482	Ohm	10

Creep resistance Method KC	53480	V	600
Dielectric constant; At 300-1000 Hz. At 3 .10 Hz.	53483		2.3 2.3
Dielectric loss factor. At 300 Hz. At 1000 Hz. At 3.10 Hz.	53483		< 3.10 5.10 < 3.10
Physiological safety	BGA		JA

The data specified here are guide values and may vary depending on the processing method and the production of test pieces. Unless specified otherwise, these are average values taken from measurements on extruded sheets 4 mm thick. This information cannot be automatically transferred to finished components. The manufacturer or user must check the suitability of our materials for a specific application.