Coleg Cambria

Llysfasi Campus

Treatment Facilities Management Plan

101004-JPS-XX-XX-MP-D-1000

Rev: P02 Status: S4

November 2025

JPS CIVIL + STRUCTURAL ENGINEERS

Table 1: Treatment Facilities Management Inspection Checklist

GENERAL INFORMATION			
Site ID	Coleg Cambria		
Site Location and co-ordinates (GIS if appropriate)	Llysfasi Campus (314738, 352332)		
Infrastructure As Built Drawing Reference(s)	TBC		
Agreements Restrictions			
Discharge Type	**Connection**	**Outflow**	**Agreement**
Surface Water	To ground	-	-
Foul	Domestic treated effluent to Nant Y Garth Watercourse	Peak = 5.2 l/s / 75m3	-
Elements forming the Treatment Facilities	Marsh 450 PE Ultra Polylok Sewage Treatment Plant (refer to appendices for details) Installation date – Summer 2025 Installed by – OBR Construction Marsh Seine Packaged Pump Station (refer to appendices for details) Marsh Chemical Dosing Unit Gem APS 450 (refer to appendices for details) Installation date – TBC Installed by - TBC		

INFRASTRUCTURE	Inspection date				Inspection date			
RECOMMENDED FREQUENY – Annually	**Details**	**Y/N**	**Action required**	**Date Completed**	**Details**	**Y/N**	**Action required**	**Date Completed**
Is there evidence of any accidental damage to the system?								
Is there any evidence of cross connections or other unauthorised inflows?								
Is there any evidence of tampering with the Treatment Facilities?								
Does the treatment tank appear to be operating effectively?								
Does the packaged pump station appear to be operating effectively?								
Does the packaged chemical dosing unit appear to be operating effectively?								
Is the sample point accessible at all times?								
Has annual de-sludging been undertaken? (frequency TBC)								
Do there appear to be any visible adverse effects on the watercourse? (e.g. dead or distressed fish, other animals or plants in the vicinity of the discharge point, noticeable deposit of solid material; growth of sewage fungus (a grey growth covering rocks or other objects in the receiving water body); or noticeable discolouration of the water flow by the discharge.)								
Drainage network to be checked CCTV survey. A list of defects should be compiled with high, medium and low risk of failure. High risk defects should be fixed immediately, medium risk should be fixed within 6 months and low risk to be monitored.								

GENERAL INSPECTION ITEMS	Inspection date				Inspection date			
RECOMMENDED FREQUENY – Biannually	**Details**	**Y/N**	**Action required**	**Date Completed**	**Details**	**Y/N**	**Action required**	**Date Completed**
Is there any evidence of erosion, channelling, ponding (where not desirable) or other poor hydraulic performance?								
Is there any evidence of accidental spillages, oils, poor water quality, odours, nuisance insects?								
Have any health and safety risks been identified to either the public or maintenance operatives?								

SILT/SEDIMENT ACCUMULATION	Inspection date				Inspection date			
RECOMMENDED FREQUENY – Monthly	**Details**	**Y/N**	**Action required**	**Date Completed**	**Details**	**Y/N**	**Action required**	**Date Completed**
Is there any sediment accumulation at inlets (or other defined accumulation zones such as the surface of filter drains or infiltration basins and within proprietary devices)?								
Is surface clogging visible (potentially problematic where water has to soak into the underlying construction or ground (e.g. underdrained swale or infiltration basin)?								
SYSTEM BLOCKAGES / LITTER BUILD UP								
Is there evidence of litter accumulation in the system? If yes, is this a blockage risk?								
Is there any evidence of any other clogging/blockage of outlets or drainage paths?								

VEGETATION	Inspection date				Inspection date			
RECOMMENDED FREQUENY – Monthly During Summer Quarterly Through Winter	**Details**	**Y/N**	**Action required**	**Date Completed**	**Details**	**Y/N**	**Action required**	**Date Completed**
Is the vegetation condition satisfactory (density, weed growth, coverage etc.)? (Check against approved planting regime.)								
Does any part of the system require weeding / pruning / mowing? (Check against maintenance frequency stated in approved design.)								
Is there any evidence of invasive species becoming established? If yes, state action required.								

Are there any other matters that could affect the performance of the system in relation to the design objectives for hydraulic, water quality, biodiversity and visual aspects? (Specify.)								
OTHER OBSERVATIONS								
Information appended (e.g. photos)								

	Inspection date				Inspection date			
	Details	**Y/N**	**Action required**	**Date Completed**	**Details**	**Y/N**	**Action required**	**Date Completed**
SUITABILITY OF CURRENT MAINTENANCE REGIME								
Continue as current Increase maintenance Decrease maintenance								
NEXT INSPECTION								
Proposed date for next inspection								

TRAINING REQUIREMENTS	INSPECTOR DETAILS	
Coleg Cambria (TBC) is responsible for procedures and who is technically competent to undertake inspections. The inspector needs to understand what the treatment facilities are designed to do, what there limitations are and the restrictions on its use (for example, chemicals which may prevent it from working properly). Anyone that inspects, maintains or repairs the system must be adequately trained and competent to do so.	**TBC**	

COMPLAINTS RECORD	HOW TO INVESTIGATE COMPLAINTS	ACTIONS TAKEN
TBC	*TBC*	*TBC*

ACCIDENT MANAGEMENT PLAN				
INCIDENTS THAT COULD RESULT IN POLLUTION	**LIKELIHOOD**	**CONSEQUENCES**	**MEASURES TAKEN TO AVOID**	**MEASURES TAKEN TO MINIMISE**
Equipment breakdowns				
Enforced shutdowns				
Fires				
Vandalism				
Flooding				
Bad Weather				
Any other incident				
DATE OF REVIEW				
DATE OF NEXT REVIEW				
EMERGENCY CONTACTS				

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ACCIDENT RECORD FORM

PREVENTING ACCIDENTS AND WHAT TO DO IF THEY HAPPEN	PREVENTION	REMEDIAL ACTION
Overloading of treatment works due to inadequate sized works/tank being installed	If any changes are to take place to the property, then ensure the treatment works are still large enough.	Follow your spill response procedure. It describes what to do in the event of a spill and where the kit is kept.
Spillages during desludging of the facility	Ensure pipe integrity has been tested prior to use and operator observes desludging process	Follow your spill response procedure. It describes what to do in the event of a spill and where the kit is kept.
Slow seepage of liquids from the treatment works	Slow seepage can be less noticeable than spills. Integrity of the treatment works will be tested. Treatment works will be maintained in line with manufacturer's instructions.	Follow your spill response procedure. It describes what to do in the event of a spill and where the kit is kept.
Releases of untreated sewage; due to faulty pipe work, valves, overpressure, blockages, pump failure, bad weather etc.	Visual inspection and completion of weekly inspection checklist record. Preventative maintenance regime. Any underground pipes and tanks will be tested for integrity.	Follow your spill response procedure. It describes what to do in the event of a spill and where the kit is kept
Sewage system stops working due to ingress of watercourse floodwater, water from blocked drains or burst mains, due to rising groundwater	Ensure that no surface water/floodwaters can enter the treatment works.	Flood procedure describing what to do in the event of a flood warning such as installation of barge boards, use of sand bags.
Treatment system stops working due to failure of electricity supply	• Provision of alarm on the treatment works to warn operators of power failure. • Provision of back-up generator should the works require constant electricity to ensure adequate treatment.	Utility supply failure procedure describing what to do in the event of services supply failure such as, start up of emergency generator.
Sewage systems leaks raw sewage due to containment failure caused by land movement, impact, corrosion etc	• Provision of secondary containment for hazardous liquids. • Inspection of primary and secondary containment facilities.	Follow your spill response procedure.

Unauthorised entry and tampering or malicious damage to the sewage treatment system and equipment	secure treatment works	Follow your spill response procedure.

Additional Notes

APPENDICES

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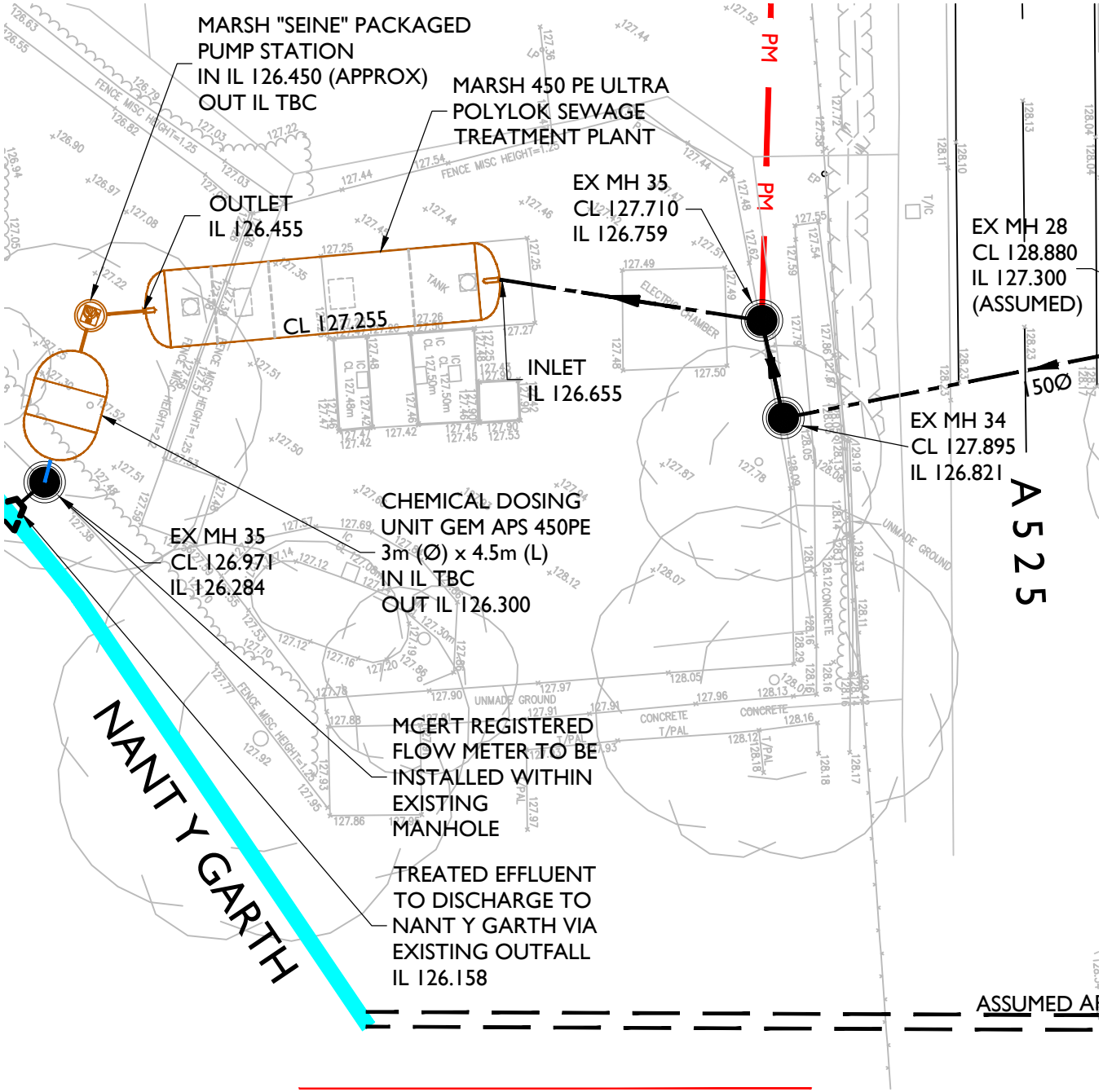
PLAN


MARSH "SEINE" PACKAGED
PUMP STATION
IN IL 126.450 (APPROX)
OUT IL TBC
MARSH 450 PE ULTRA
POLYLOK SEWAGE
TREATMENT PLANT
OUTLET
IL 126.455
CL 127.255
INLET
IL 126.655
EX MH 35
CL 127.710
IL 126.759
EX MH 28
CL 128.880
IL 127.300
(ASSUMED)
150Ø
EX MH 34
CL 127.895
IL 126.821
A525
EX MH 35
CL 126.971
IL 126.284
CHEMICAL DOSING
UNIT GEM APS 450PE
3m (Ø) x 4.5m (L)
IN IL TBC
OUT IL 126.300
MCERT REGISTERED
FLOW METER TO BE
INSTALLED WITHIN
EXISTING
MANHOLE
TREATED EFFLUENT
TO DISCHARGE TO
NANT Y GARTH VIA
EXISTING OUTFALL
IL 126.158
NANT Y GARTH
ASSUMED AI
PM
PM

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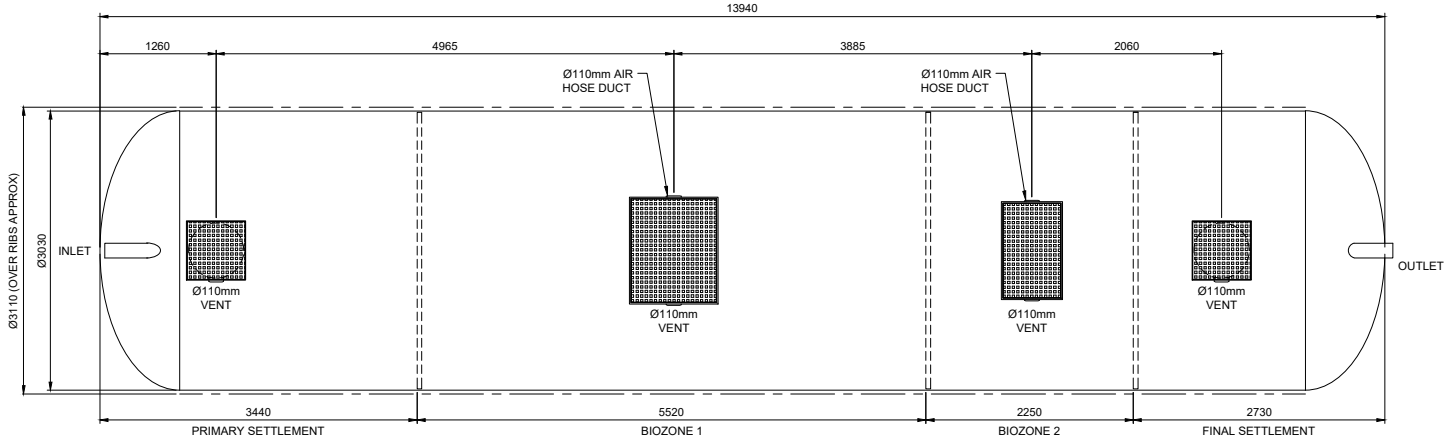
PRODUCT DATA SHEETS

DRAWING APPROVAL		
	SIGNED	DATE
MARSH IND.	S. KEALY	16.05.25
CUSTOMER		

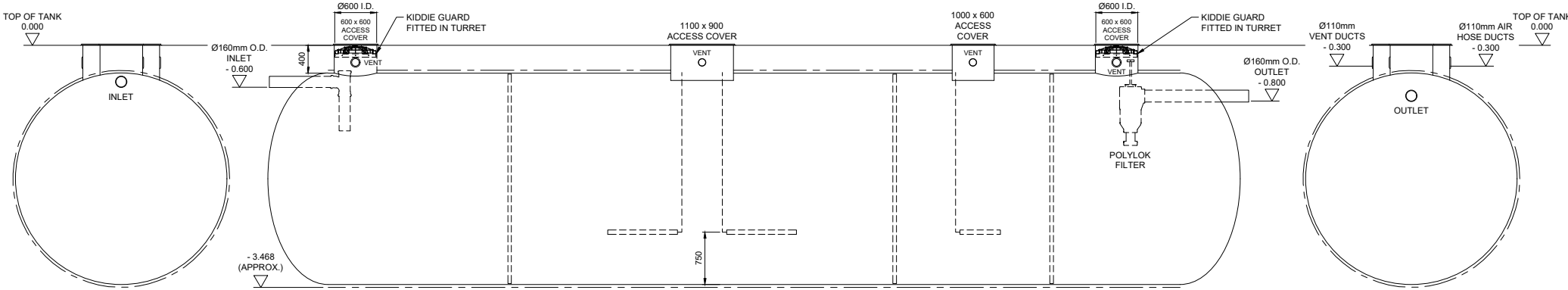
CUSTOMER TO SELECT	
SINGLE PHASE ELECTRICS	THREE PHASE ELECTRICS



PLAN

FOR PRODUCTION USE ONLY		
	No. OF DIFFUSERS	MEDIA
BIOZONE 1		
BIOZONE 2		
SIDE CHANNEL BLOWER(S):		

GENERAL NOTE:
All tanks are subject to a 2.5% tolerance on all dimensions. Any internals (if shown) are for guidance only, and may vary in design / individual specifications.



VIEW ON INLET

SIDE ELEVATION

VIEW ON OUTLET

REV	DESCRIPTION	DATE	SIG
A	For Approval.	16.05.25	S.K.

ORIG. | CHKD | APP'D

SCALE N.T.S. | DATE 16.05.2025

3 RD ANGLE PROJECTION | DO NOT SCALE IF IN DOUBT ASK

CLIENT
COTTERILL DRAINAGE LTD.

LLYSFASI COLLEGE

(MARSH O.N: T.B.C.)

TITLE
MARSH 450 PE ULTRA POLYLOK STP. GRAVITY OUTLET Ø3.0m x 13.94m LONG (30 DAY DESLUDGE) (OPTION 2)

MARSH
INDUSTRIES LTD.
UNITS 9-13 ADDINGTON PARK IND. EST., LITTLE ADDINGTON, KETTERING, NORTHAMPTONSHIRE, NN14 4AS.

DRG. SHEET 1 of 2 | REV A

PROTOCOL

ON PRODUCT TYPE TESTING

Czech

Registration No. 1017 – CPR – 05.686.913, Revision No. 1

In compliance with Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC, this protocol is issued for the construction product:

Domestic Wastewater Treatment Plant

Type range: **Ultra Polylok**

Types: **6PE, 10PE, 12PE, 16PE, 20PE, 25PE, 30PE, 35PE, 40PE, 45PE, 50PE**

MARSH INDUSTRIES LIMITED

Units 3-13 Little Addington Business Park, Irthlingborough Road, Little Addington, Kettering NN14 4AS United Kingdom
VAT Ident. No.: GB866868943

Place of production: See above

TÜV SÜD Czech s.r.o. performed the initial testing of the respective product characteristics described in Annex ZA of the standard

EN 12566-3:2005+A1:2009

The results of the tests are given in the Evaluation Report Reg. No. 05.686.240 from 20 April 2012, which contains 3 pages and is an integral part of this Protocol on product type testing.

Evaluation of tests:

Essential characteristics	Performance			Harmonised TS
Treatment efficiency on organic daily loading BOD_5 = 0,48 kg/day	BOD_5 COD_{CR} SS $N\text{-}NH_4^+$ P_{Total}	96,3 % 89,3 % 91,8 % 65,5 % 40,7 %	16,7mg O_2/l 84,0 mg O_2/l 26,2 mg/l 15,4 mg/l 5,8 mg/l	EN 12566-3.2005+A1:2009 Annex B
Watertightness (water test)	Passed			EN 12566-3.2005+A1:2009
Structural behaviour (calculation)	Passed			EN 12566-3.2005+A1:2009
Durability	Passed			EN 12566-3.2005+A1:2009

This Protocol was first issued on 3 May 2012 as the Protocol on product type testing according to CPD.

Prague, 11 July 2013

TÜV SÜD Czech s.r.o. NOTIFIED BODY 1017

on behalf of Notified Body 1017
Jana Bačinová
Head of Certification Department

TÜV SÜD Czech s.r.o. ● Novodvorská 994 ● 142 21 Prague 4 ● Czech Republic ● certification@tuv-sud.cz

SAFETY DATA SHEET
FERRIC SULPHATE SOLUTION

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name FERRIC SULPHATE SOLUTION

Product number 11382

Synonyms; trade names VO - FLOC 1131,IRON (III) SULPHATE SOLUTION,FERRIC SULPHATE SOLUTION 35%,FERRIC SULPHATE 40% SOLUTION,PIX-113

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Water Treatment

1.3. Details of the supplier of the safety data sheet

Supplier

Univar
Aquarius House
6 Mid Point Business Park
Bradford
BD3 7AY
+44 1274 267300
sds@univar.com
+44 1274 267306

1.4. Emergency telephone number

Emergency Contact Number (Office Hours) +44 1274 267346

Emergency Contact Number (Outside Office Hours) +441865 407333

Sds No. 11382

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification

Physical hazards Not Classified

Health hazards Acute Tox. 4 - H302 Skin Corr. 1C - H314 Eye Dam. 1 - H318

Environmental hazards Not Classified

Classification (67/548/EEC or 1999/45/EC) Xn; R22. C; R34

2.2. Label elements

FERRIC SULPHATE SOLUTION

Pictogram


Signal word	Danger
Hazard statements	H302 Harmful if swallowed. H314 Causes severe skin burns and eye damage.
Precautionary statements	P260 Do not breathe vapour/spray. P264 Wash contaminated skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P280 Wear protective gloves/protective clothing/eye protection/face protection. P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor. P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P321 Specific treatment (see medical advice on this label). P363 Wash contaminated clothing before reuse. P405 Store locked up. P501 Dispose of contents/container in accordance with national regulations.
Contains	IRON (III) SULPHATE, IRON (II) SULFATE

2.3. Other hazards

The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

IRON (III) SULPHATE **30-60%**

CAS number: 10028-22-5 EC number: 233-072-9 REACH registration number: 01-2119513202-59

Classification	Classification (67/548/EEC or 1999/45/EC)
Acute Tox. 4 - H302 Skin Irrit. 2 - H315 Eye Dam. 1 - H318	Xn; R22. Xi; R38, R41

IRON (II) SULFATE **1-5%**

CAS number: 7720-78-7 EC number: 231-753-5 REACH registration number: 01-2119513203-57

Classification	Classification (67/548/EEC or 1999/45/EC)
Acute Tox. 4 - H302 Skin Irrit. 2 - H315 Eye Irrit. 2 - H319	Xn; R22. Xi; R36/38

FERRIC SULPHATE SOLUTION

SULPHURIC ACID ...%		**<1%**
CAS number: 7664-93-9	EC number: 231-639-5	

Classification	**Classification (67/548/EEC or 1999/45/EC)**
Skin Corr. 1A - H314 Eye Dam. 1 - H318	C; R35

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Composition comments The data shown are in accordance with the latest EC Directives.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation Move affected person to fresh air at once. Rinse nose and mouth with water. Get medical attention.

Ingestion Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Rinse mouth thoroughly with water. Give plenty of water to drink. Get medical attention.

Skin contact Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention immediately.

Eye contact Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention immediately. Continue to rinse.

4.2. Most important symptoms and effects, both acute and delayed

Inhalation Upper respiratory irritation.

Ingestion Chemical burns.

Skin contact Chemical burns.

Eye contact Causes burns.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor No specific recommendations. If in doubt, get medical attention promptly.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media The product is non-combustible. Use fire-extinguishing media suitable for the surrounding fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards Toxic gases or vapours. Oxides of the following substances: Sulphur.

5.3. Advice for firefighters

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid inhalation of vapours and contact with skin and eyes. Provide adequate ventilation. Wear protective clothing as described in Section 8 of this safety data sheet. Follow precautions for safe handling described in this safety data sheet.

FERRIC SULPHATE SOLUTION

6.2. Environmental precautions

Environmental precautions Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Absorb spillage with inert, damp, non-combustible material. Flush contaminated area with plenty of water. Collect and place in suitable waste disposal containers and seal securely. For waste disposal, see Section 13.

6.4. Reference to other sections

Reference to other sections Wear protective clothing as described in Section 8 of this safety data sheet.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Avoid spilling. Avoid contact with skin and eyes. Avoid inhalation of vapours and spray/mists. Provide adequate ventilation.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place. Unsuitable container materials: Common metals. Store at temperatures above °C/°F.

Storage class Corrosive storage.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

SULPHURIC ACID ...%

Long-term exposure limit (8-hour TWA): WEL 0.05 mg/m³ mist (thoracic fraction)

WEL = Workplace Exposure Limit

Ingredient comments No exposure limits known for ingredient(s).

IRON (III) SULPHATE (CAS: 10028-22-5)

Ingredient comments No exposure limits known for ingredient(s).

IRON (II) SULFATE (CAS: 7720-78-7)

Ingredient comments No exposure limits known for ingredient(s).

PNEC
- Sediment (Freshwater); 49.5 mg/kg
- Soil; 55000 mg/kg

8.2. Exposure controls

Protective equipment

FERRIC SULPHATE SOLUTION

Appropriate engineering controls	Provide adequate ventilation.
Eye/face protection	Wear tight-fitting, chemical splash goggles or face shield.
Hand protection	Wear protective gloves. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. SPECIFIC RECOMMENDATIONS. Rubber (natural, latex). Neoprene. Polyvinyl chloride (PVC).
Other skin and body protection	Wear rubber apron. Wear rubber footwear. Wear appropriate clothing to prevent any possibility of skin contact.
Hygiene measures	Provide eyewash station. Wash hands at the end of each work shift and before eating, smoking and using the toilet.
Respiratory protection	If ventilation is inadequate, suitable respiratory protection must be worn.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Brown.
Odour	Characteristic.
pH	pH (concentrated solution): < 1
Initial boiling point and range	100 - 105°C @
Bulk density	1480 - 1610 kg/m³
Solubility(ies)	Completely soluble in water.
Partition coefficient	: < 3
Viscosity	30 mPa s @ 20°C

9.2. Other information

Other information	Not available.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	The following materials may react with the product: Metals The following materials may react violently with the product: Reactions with the following materials may generate heat: Alkalis.

10.2. Chemical stability

Stability	Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Reactions with the following materials may generate heat: Metals

10.4. Conditions to avoid

Conditions to avoid	Avoid excessive heat for prolonged periods of time.

10.5. Incompatible materials

Materials to avoid	Strong oxidising agents. Aluminium. Copper. Alkalis.

10.6. Hazardous decomposition products

FERRIC SULPHATE SOLUTION

Hazardous decomposition products Sulphurous gases (SOx).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

ATE oral (mg/kg) 909.42

Inhalation Upper respiratory irritation. May cause damage to mucous membranes in nose, throat, lungs and bronchial system.

Ingestion Causes burns. Swallowing concentrated chemical may cause severe internal injury.

Skin contact Causes burns. Prolonged and frequent contact may cause redness and irritation.

Eye contact Causes burns. May cause chemical eye burns. May cause blurred vision and serious eye damage.

Toxicological information on ingredients.

IRON (III) SULPHATE

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg) 300.0

Species Rat

Acute toxicity - dermal

Acute toxicity dermal (LD_{50} mg/kg) 2,000.0

Species Rat

Skin corrosion/irritation

Animal data OECD 404 Not irritating.

Serious eye damage/irritation

Serious eye damage/irritation Causes serious eye damage.

Inhalation Upper respiratory irritation.

Ingestion May cause discomfort if swallowed. Causes burns.

Skin contact Irritating to skin.

Eye contact Risk of serious damage to eyes.

IRON (II) SULFATE

Acute toxicity - oral

ATE oral (mg/kg) 500.0

Acute toxicity - dermal

FERRIC SULPHATE SOLUTION

Acute toxicity dermal (LD_{50} mg/kg)	2,000.0

Inhalation	May cause respiratory system irritation.
Ingestion	Harmful if swallowed. Gastrointestinal symptoms, including upset stomach.
Skin contact	Irritating to skin.
Eye contact	Irritating to eyes. Symptoms following overexposure may include the following: Redness. Pain.
Target organs	Eyes Skin Gastro-intestinal tract Heart & cardiovascular system

MANGANESE SULPHATE

Inhalation	Harmful by inhalation.
Ingestion	Harmful: danger of serious damage to health by prolonged exposure if swallowed.
Skin contact	Irritating to skin.
Eye contact	Irritating to eyes.

SECTION 12: Ecological Information

Ecotoxicity The product components are not classified as environmentally hazardous. However, large or frequent spills may have hazardous effects on the environment. The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms.

Ecological information on ingredients.

IRON (III) SULPHATE

Ecotoxicity The product components are not classified as environmentally hazardous. However, large or frequent spills may have hazardous effects on the environment.

IRON (II) SULFATE

Ecotoxicity The product components are not classified as environmentally hazardous. However, large or frequent spills may have hazardous effects on the environment.

MANGANESE SULPHATE

Ecotoxicity The product contains substances which are toxic to aquatic organisms and which may cause long-term adverse effects in the aquatic environment.

12.1. Toxicity

Toxicity Not considered toxic to fish.

Ecological information on ingredients.

IRON (III) SULPHATE

Acute toxicity - fish LC50, 96 hours, 96 hours: > 100 mg/l, Onchorhynchus mykiss (Rainbow trout)

FERRIC SULPHATE SOLUTION

Acute toxicity - aquatic invertebrates EC_{50}, 48 hours, 48 hours: 82.8 mg/l, Daphnia magna

IRON (II) SULFATE

Toxicity Not considered toxic to fish.

12.2. Persistence and degradability

Persistence and degradability The product contains mainly inorganic substances which are not biodegradable. The other substances in the product are not expected to be readily biodegradable.

Ecological information on ingredients.

IRON (III) SULPHATE

Persistence and degradability There are no data on the degradability of this product.

IRON (II) SULFATE

Persistence and degradability The product is not expected to be biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential The product is not bioaccumulating.

Partition coefficient : < 3

Ecological information on ingredients.

IRON (III) SULPHATE

Bioaccumulative potential No data available on bioaccumulation.

IRON (II) SULFATE

Bioaccumulative potential No data available on bioaccumulation.

12.4. Mobility in soil

Mobility The product is soluble in water.

Ecological information on ingredients.

IRON (III) SULPHATE

Mobility The product is soluble in water.

IRON (II) SULFATE

Mobility The product is soluble in water.

MANGANESE SULPHATE

Mobility The product is soluble in water.

12.5. Results of PBT and vPvB assessment

FERRIC SULPHATE SOLUTION

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

Ecological information on ingredients.

IRON (III) SULPHATE

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

IRON (II) SULFATE

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB.

12.6. Other adverse effects

Other adverse effects Not available.

Ecological information on ingredients.

IRON (III) SULPHATE

Other adverse effects No information required.

IRON (II) SULFATE

Other adverse effects Not determined.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Do not puncture or incinerate, even when empty. Waste is classified as hazardous waste. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

SECTION 14: Transport information

General Wear protective clothing as described in Section 8 of this safety data sheet.

14.1. UN number

UN No. (ADR/RID) 3264

UN No. (IMDG) 3264

UN No. (ICAO) 3264

14.2. UN proper shipping name

Proper shipping name (ADR/RID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.(FERRIC SULPHATE)

Proper shipping name (IMDG) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.(FERRIC SULPHATE)

Proper shipping name (ICAO) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.(FERRIC SULPHATE)

Proper shipping name (ADN) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.(FERRIC SULPHATE)

FERRIC SULPHATE SOLUTION

14.3. Transport hazard class(es)

ADR/RID class 8

ADR/RID subsidiary risk

ADR/RID label 8

IMDG class 8

IMDG subsidiary risk

ICAO class/division 8

ICAO subsidiary risk

Transport labels

14.4. Packing group

ADR/RID packing group III

IMDG packing group III

ICAO packing group III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

EmS F-A, S-B

Emergency Action Code 2X

Hazard Identification Number (ADR/RID) 80

Tunnel restriction code (E)

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information required.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No. 716).

EU legislation Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).
Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).

FERRIC SULPHATE SOLUTION

Guidance	CHIP for everyone HSG228. Safety Data Sheets for Substances and Preparations. Approved Classification and Labelling Guide (Sixth edition) L131.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Revision comments	NOTE: Lines within the margin indicate significant changes from the previous revision.
Revision date	03/06/2015
Revision	04
Supersedes date	15/02/2015
SDS number	11382
SDS status	Approved.
Signature	Jitendra Panchal
Risk phrases in full	R22 Harmful if swallowed. R34 Causes burns. R38 Irritating to skin. R41 Risk of serious damage to eyes.
Hazard statements in full	H302 Harmful if swallowed. H314 Causes severe skin burns and eye damage. H315 Causes skin irritation. H318 Causes serious eye damage. H319 Causes serious eye irritation.

TURKISH SIGNATURE

GEM-APS

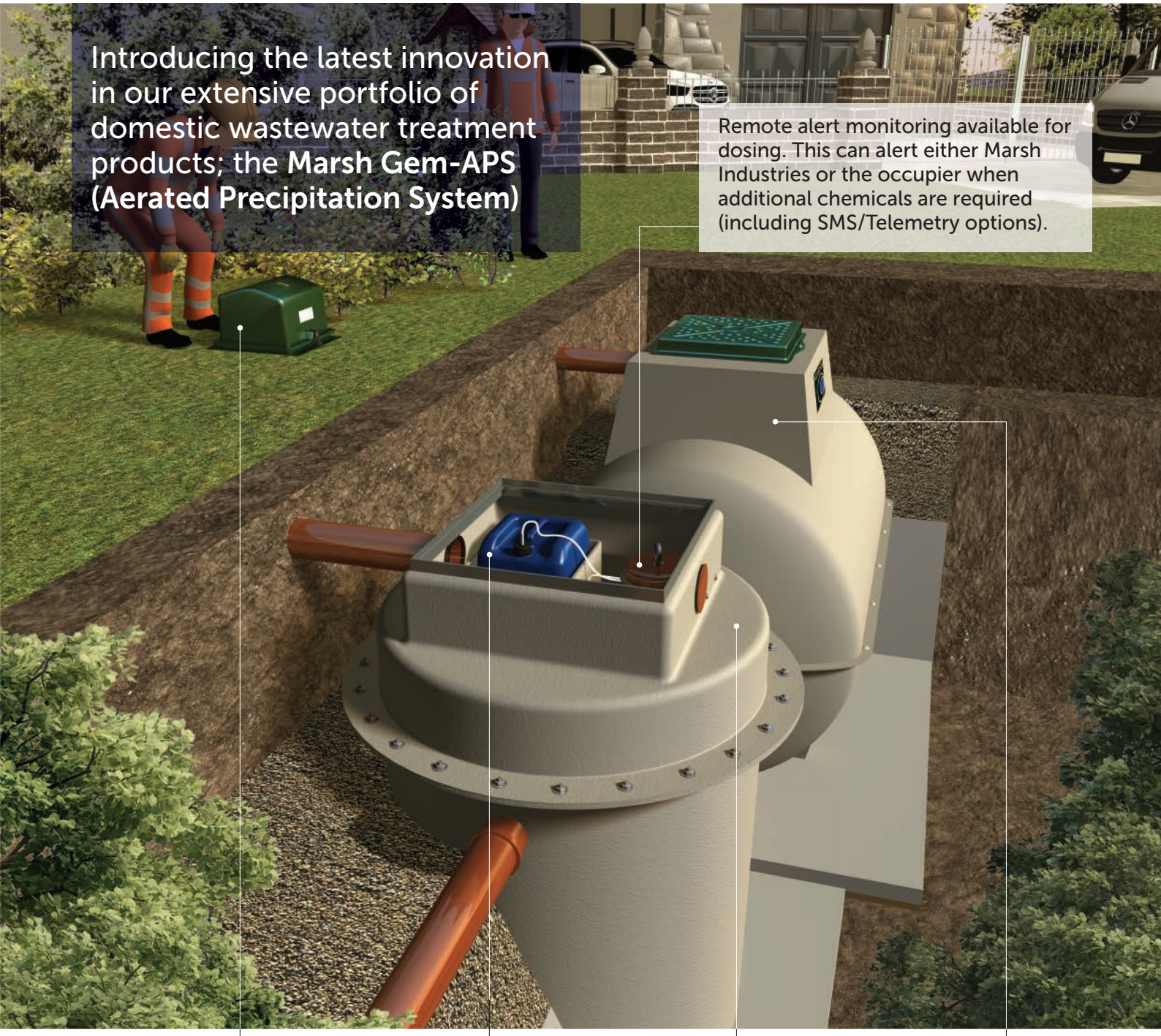
AERATED PRECIPITATION SYSTEM

PHOSPHATE AND AMMONIA REDUCTION

MADE IN BRITAIN®

MARSH

Eco-friendly, economical **phosphate and ammonia reduction**



Introducing the latest innovation in our extensive portfolio of domestic wastewater treatment products; the **Marsh Gem-APS (Aerated Precipitation System)**

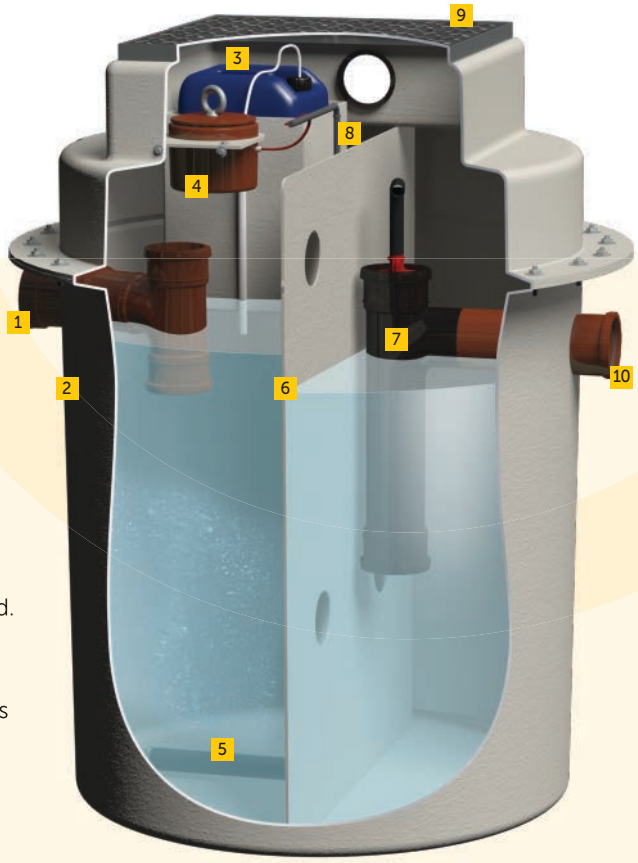
Remote alert monitoring available for dosing. This can alert either Marsh Industries or the occupier when additional chemicals are required (including SMS/Telemetry options).

Air blower and control panel housing
Chemical dosing process is pre-configured based upon the expected flows and loads of the sewage treatment plant

Chemical dosing components
Controlled process involving chemical dosing and aeration

Gem-APS
Economical, efficient, and cost-effective phosphate, ammonia and BOD reduction unit

Marsh Ensign® sewage treatment plant
The Gem-APS can be positioned at the outlet end of any existing sewage treatment plant (dependent on sizing)



Overview

The Gem-APS is designed to further reduce phosphates, ammonia and BOD from wastewater that has been previously treated in a domestic sewage treatment plant.

Positioned at the outlet end of any existing sewage treatment plant, the Gem-APS treats the discharged wastewater in a controlled process involving small volumes of chemical dosing and aeration in compliance with British Water and local environmental regulations, allowing the remaining effluent to be safely discharged to a river, ditch or drainage field.

Chemical dosing amounts are pre-configured based upon the expected flows and loads of the sewage treatment plant (Full scaleable detail available). The Gem-APS can also be regulated to reduce phosphate levels further.

Marsh offers commissioning and servicing of the Gem-APS, it is strongly advised to use this service when setting up the unit.

Benefits

- Tested in accordance with BS EN 12566-7 Annex A at PIA GmbH test facility in Aachen, Germany
- Small footprint and shallow dig for easy installation provides enhanced health and safety benefits
- Heavy duty shell as standard enables installation in all ground conditions. Unique 'keying-in' lip assists anchoring into granular or concrete surrounds
- Near silent, energy efficient compressor (located externally) with integral alarm
- Unique Polylok tertiary filter reduces suspended solids helping to extend drainage field life
- Lockable lid for safety and security
- Low level chemical alarm/indicator to ensure continuous phospahte reduction. Remote alert monitoring also available.

Features

1 Inlet
2 GRP tank appropriately sized for the sewage treatment plant
3 Dosing chemical container
4 Dosing chemical pump in watertight housing
5 Aeration diffuser(s)
6 Separating baffle with grate to stop media migration
7 Polylok filter for solids and flocculent capture
8 Pipework and sludge return
9 Lockable lid for safety and security
10 Outlet

Phosphate: 0.9mg/L
Ammonia: 0.4mg/L
BOD: 2mg/L

"The Gem APS is a unique innovation for use on sites where phosphate discharge is a problem or where ammonia and BOD requirements are strict for planning consent.

Tank sizing and specification

For precise sizing and product specification, please contact the Marsh technical team on 01933 654582 or email sales@marshindustries.co.uk

Note: Tank products and configurations shown for illustrative purposes only

Other eco-friendly products from Marsh Industries

Marsh:UV disinfection unit
Ultra violet effluent disinfection for off-mains drainage
Removes 99% faecal coliform bacteria levels from sewage treatment plant effluent

Whisspurr®
Acoustic Vibration Reduction (AVR) unit
Eliminates noise and vibration from diaphragm compressors used in the water and wastewater treatment sectors

Product safety

Structural integrity testing

Structural integrity tests, performed in accordance with EN ISO 179-1/1eA: 2010-11, were undertaken to evaluate the strength of Marsh Industries' GRP materials against similar GRP materials used by other manufacturers.

Three separate material samples were submitted for impact testing; Marsh GRP material (virgin unfilled resin), a GRP material containing calcium fillers and a GRP material containing sand filler.

The tests involved 12 samples of each material at a size of 80x10x5mm. The nominal pendulum energy was 15J at an impact velocity of 3.8m/s.

Results proved Marsh GRP material to be 40% stronger than the other materials tested.

Fire resistance testing

Fire resistance testing was performed to assess ignitability of products subjected to direct impingement of flame. Marsh Industries' GRP material passed all practical testing to achieve EN ISO 11925-2:2010 standard.

Design capability

GAIA SÉGE® process design software for bespoke systems

Developed by Marsh Industries, our unique Gaia Sége process design software uses core information to accurately calculate and tailor key variables ensuring total optimisation for sewage treatment plants, pump stations, grease management systems and stormwater attenuation.

These precise calculations provide assurance to consultants, engineers, specifiers and contractors that the system is specifically designed to meet the appropriate standards of regulatory bodies.

Our technical team can help you with your bespoke off-mains drainage projects today.

Commissioning and servicing

Marsh Industries offers a nationwide service to cover all aspects of commissioning and servicing on the Marsh WellWater pump station range.

Commissioning and servicing packages can be tailored to customer requirements from basic commissioning contracts to commissioning and full service contracts, including on-going support and advice.

Advice and guidance

For advice and guidance on choosing the right products for your site please contact Marsh Industries on +44 (0)1933 654582 or email sales@marshindustries.co.uk

01933 654582 | sales@marshindustries.co.uk | www.marshindustries.co.uk

Seine Packaged Pump Station Details

	Specification
Marsh product code	THEF1126V02L
Product range	Seine
Material to be pumped	Effluent
No. of pumps	2
Explosion rating	NA
Impeller type	Channel
Power rating per pump [kW]	0.55
Electrical connection phase	1
Internal pipework	32mm PVC
Static lift [m]	5.3
Rising main length supplied by others [m]	20
Level control	Floats
Length of cable	10 metres
Chamber diameter [m]	1.10
Depth of chamber [m]	2.60
Inlet invert [m]	1.00
Total storage capacity [litres]	2050
Storage below inlet invert [litres]	1521
Inlet connection [mm]	110mm @ 9 o'clock orientation
MDPE outlet connection [mm]	50mm @ 3 o'clock orientation
Outlet invert [m]	0.3
Cover type	600mm x 600mm Pedestrian Duty Cover
Control panel details	320mm H x 240mm W x 190mm D with Polymer Casing (includes high level alarm)
SMS alert system	NA
Price including delivery (not offloading) ex VAT	**£ 2,218.00**
Optional roadside steel kiosk to house the control panel (1250H x 750W x 450D):	**£ 380.00**