Environmental criteria for sustainable public procurement of

Water Purification and Sludge Treatment Plants (including purchase of chemicals)

Version 7 May 2015

1. Scope/definition

The product group Water Purification and Sludge Treatment Plants includes the procurement of works, services and supplies for the purposes of water purification and sludge treatment.

Main group	Subgroups
Sewage purification plants for urban waste water and industrial waste water treatment plants for purification of waste water within depots and establishments for dredging spoil treatment.	Subprocesses (removal of primary sludge, aerobic components, eutrophying components, suspended matter and purification sludge) Industrial buildings (mainly to house equipment)
Sludge treatment (ST)	Subprocesses (consolidation, fermentation, dewatering, transport, further treatment and final processing of purification sludge) Industrial buildings (mainly to house equipment)
Chemicals within water purification and sludge treatment plants	Metallic compounds (Al and Fe salts, Fe hydroxide) Polyelectrolytes Lime products (calcium compounds) Hypochlorite Caustic C sources

Water purification plants (WPPs) for urban waste water come within the responsibility of the water boards. These are generally biological purification plants, whether or not supplemented by physical chemical subprocesses. Industrial water purification plants generally come within the responsibility of private companies. Industrial WPPs are only relevant within the context of sustainable procurement if they come within the responsibility of government. This mainly concerns the physical chemical treatment of waste water, or returned water, from large-scale and small-scale depots and establishments for the treatment of dredging spoil, with the large-scale ones being the responsibility of the Directore-General for Public Works and Water Management (RWS) and the small-scale ones being the responsibility of water boards.

Treatment of the sludge from plants for urban waste water takes place partly within the WPP and partly at companies. These are both private companies and companies dominated by government. The sludge from industrial waste water treatment plants is treated mainly at private companies.

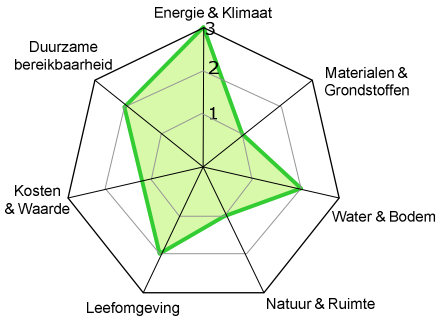
The following products (with their corresponding CPV codes) are part of this product group. This list of products is non-exhaustive

Products	CPV code
Water purification works	45232410-9
Construction works for sewage purification plants	45232420-2
Sewage treatment plant	45232421-9
Sludge treatment plant	45232422-6
Dredging and pumping works for water purification plants	45245000-6
Construction works for sewage treatment plants, purification plants and refuse incineration plants	45252000-8
Construction of water treatment plant	45252120-5
Sedimentation installations	45252121-2
Sewage digester tanks	45252122-9
Screening installations	45252123-6
Construction of sewage treatment plant	45252100-9
Construction of sludge dewatering plant	45252140-1
Construction of water purification plant	45252210-3
Construction of drinking water treatment plant	45252126-7
Construction of waste water treatment plan	45252127-4
Sewage plant equipment	45252130-8
Purification plant equipment	45252200-0
Construction of sludge dewatering plant	45252140-1
Sludge treatment equipment	34951200-0
Operation of a water purification plant	65120000-0

Operation of a waste water purification plant	90481000-2
Demolition activities	45111100-9
Basic inorganic and organic chemicals.	24300000-7
Fine and various chemical products.	24900000-3

2. Criteria documents and Sustainable Groundwork, Road and Hydraulic Engineering Approach (Aanpak Duurzaam GWW)

The core of the Sustainable Groundwork, Road and Hydraulic Engineering Approach (Aanpak Duurzaam GWW) is to allow sustainability aspects to be a consideration from an early planning stage, with a focus on the whole life cycle of the infrastructure or object(s) to be built. This is the approach that facilitates the biggest gains in sustainability, and it allows a good and broad-based consideration of People, Planet and Profit to be made in every project.



The AmbitionWeb has a key role in the Sustainable Groundwork, Road and Hydraulic Engineering Approach. It helps clarify ambitions at an early stage of a project, so they can then be maintained throughout the entire project process. For more information about the Sustainable Groundwork, Road and Hydraulic Engineering Approach and AmbitionWeb, see http://duurzaamgww.nl/.

The AmbitionWeb revolves around a number of sustainability themes, each with three ambition levels:

1. insight into the biggest impactors and flows for the theme in question, with the achievement of a minimum level
2. drafting specific reduction targets and achieving a significant improvement on the theme in question
3. adding value, instead of just making 'less bad'. Not only is the impact on people/planet/profit zero, but a positive contribution is made

Part of level 1 is meeting the suitability requirements, minimum requirements and contract provisions of the Sustainable Procurement criteria documents. The award criteria may be used to make a contribution to level 2.

Below is a list of the requirements and criteria broken down by the individual themes. The criteria documents identify a total of five themes:

- energy and climate
- supplies and raw materials
- water and soil
- living environment
- nature and space

The following table presents the themes on which the buyer can actually have an impact by using the requirements and criteria in this criteria document.

Themes	**Level 1 AmbitionWeb** Selection criteria (SC) Technical specifications (ME) Contract provisions (CB)	**Level 2 AmbitionWeb** Award criteria (GC)
Energy and climate		GC1. Energy consumption
Supplies and raw materials	ME2. Processing/removal of stony substances CB1. Management and	GC3. Recovery of phosphate

	maintenance plan	
Water and Soil	ME1. Ecotoxicity of chemicals	GC2. Priority substances in chemicals GC3. Recovery of phosphate

3. Assignment of criteria to project phases

The criteria in this document pertain to both the design and completion of new construction and reconstruction of works, as well as the management, maintenance and demolition of existing works. In the following table, the criteria are assigned to the individual phases to which they apply.

Criterion / Area of application	Design	Completion	Management and Maintenance	Demolition
Technical specifications				
1. Ecotoxicity of chemicals	-	-	x	-
2. Processing/removal of stony substances	-	-	x	x
Award criteria				
1. Energy consumption	o	o	o	-
2. Priority substances in chemicals	-	-	o	-
3. Recovery of phosphate and other raw materials	o	o	o	-
Contract provisions				
1. Management and maintenance plan	-	x	x	-

x = include in this phase
- = do not include in this phase
o = optional

4. Selection criteria

Not defined for this product group.

5. Technical specifications

No.	Technical specifications (ME)
ME1	**Ecotoxicity of chemicals** The chemicals to be used to which the GAM (general assessment method) classification is applicable, must comply with GAM class B or C. *Explanation* In order to use sustainable chemicals, the contracting authority must, during the preparatory stage, take account of the suitability of the plant. No separate criterion is included for this. A 'desirable clean-up effort' (A, B or C) is linked to each GAM class: The clean-up effort indicates the level of effort which must be expended to reduce the discharge of the substance. According to the national water quality policy, three levels are distinguished for clean-up efforts: a. Substances labelled problematic to water, linked with clean-up effort: terminate contamination.

	b. Substances labelled problematic to water, linked with clean-up effort: prevent discharge as far as possible. c. Limited number of other relatively innocuous substances, such as sulphate, carbonate and chloride: prevent as far as possible waste ending up in waste water, i.e. good housekeeping. The GAM employs the exotoxicity parameters and criteria in European legislation regarding the classification of substances and preparations (Council Directive (EC) Substances directive 67/548/EEC). The procedure is also linked to European legislation. The contracting authority must inventory in advance the chemicals for which there are alternatives available and the chemicals to which the GAM classification is applicable, such as is the case for polyelectrolyte for example. More information about the GAM classification may be found in the report 'Assessment of substances and preparations within the context of the implementation of the water discharge policy' from the Dutch integrated water management committee (CIW): www.helpdeskwater.nl/aspx/download.aspx?File=/publish/pages/575/ciw42000-05beoordeling_stoffen_en_preparaten.pdf. It is not yet clear at this moment whether this requirement can be enforced for metallic salts, which are separate from any contamination with heavy metals, and for a comparison between Al and Fe salts, between chlorides and sulphates, and whether for secondary Al, Fe or C sources, analyses according to the GAM system are available. It is not desirable that the criterion raises a threshold against the use of secondary sources. At the time of the call for tender, the contracting authority must itself determine for which chemicals the requirement can be stipulated. *Verification* The tenderer may be asked to submit documentation demonstrating compliance with the requirements above.
ME2	**Processing/removal of stony substances** If stony substances are broken up, the breaking must take place according to the assessment guideline BRL 2506. *Verification* The tenderer may be asked to submit a KOMO product certificate 'BRL 2506 Recylclinggranulaten voor toepassing in GWW-werken en in beton' (BRL 2506 Recycling granulates for use in Groundwork, Road and Hydraulic Engineering works and in concrete). Certificates can be verified on www.bouwkwaliteit.nl.

6. Award criteria

No.	Award criteria (GC)
GC1	**Energy usage** The lower the energy usage, calculated according to kWh per inhabitant-equivalent (i.e.) served, of the system or component, the higher the tender will be evaluated. [for replacement or if a reference is available] The lower the energy usage, calculated according to kWh per i.e. served), is than that of the system or component to be replaced, the higher the tender will be evaluated. The following should be understood when referring to a system or component: …. …. The tender will be evaluated as follows: <to be completed further by the contracting authority>. *Explanation* The contracting authority must fill in here what components of the water purification and/or sludge treatment plant are included in this tender, such as the aeration or the dewatering. The contracting authority may use the energy usage of the system to be replaced as reference for the assessment of this criterion. The best available technology applies as starting point for the energy usage of a new system or component.

	In this case, "best available technology" means: "the best available energy-saving technology and best energy-saving design solutions which can be used within current risk and reliability parameters". A list is available for this, which has been drafted in the context of the Meerjarenafspraken Energie-efficiency (multi year agreement on energy efficiency, MJA-3) as best available technology. *Verification* There are multiple verification options. For example, the tenderer could be asked to plausibly demonstrate the energy consumption. After a certain period of time, actual energy consumption can be reviewed to verify whether the energy consumption as tendered is actually being achieved.
GC2	*(for purchase during the utilisation stage)* **Priority substances in chemicals** The lower the content of priority substances in the chemicals to be used, the higher the tender will be evaluated. The tender will be evaluated as follows <...> *Explanation* If upper limits are known (which is sometimes the case in a licence), the values may be related to the upper limits in the licence. Cumulative and normalised contents of priority substances or values for certain selected substances may also be used in the evaluation. For supply over a longer period and/or as multiple consignments, a bonus/penalty clause may be included in the contract based on the check analyses carried out during the contract. A priority list is available in the context of the WFD, see for example: www.rivm.nl/rvs/Stoffenlijsten/KRW/KRW_Stoffenlijst. It is recommended to request an analysis only for the most critical priority substances, such as Cu, Ni, Pb, Cd, Cr, Zn and Hg. *Verification* The prospective contractor(s) may be asked to provide a list of the chemicals to be used and the associated analysis certificates. The analysis certificates must be issued by a laboratory certified to carry out the relevant analyses, accredited by a member of the European Accreditation cooperative (EA).
GC3	**Recovery of phosphate and other raw materials** The more phosphate, measured in kg, and other raw materials recovered in the waste water purification and/or sludge treatment, the higher the tender will be rated. The guidelines here should be the ambitions of the specific water board under the Energie en Grondstoffabriek (energy and raw materials factory) programme (www.energiefabriek.com). *Verification* There are multiple verification options. For example, the tenderer could be asked to plausibly demonstrate the reclamation of raw materials as tendered. After a certain period of time, actual reclamation can be reviewed to verify that the reclamation as tendered is actually being achieved.

7. Contract provisions

No.	Contract provisions (CB)
CB1	**Management and maintenance plan** On completion of the project, a management and maintenance plan must be provided in which the extent of the maintenance measures to be implemented and an estimate of the associated costs during <X> years are shown. The management and maintenance plan should consist in any case of the following sections: • description of the materials used • description of the inspection intervals to be observed during <X> years of the project, with associated instructions (at least a description of inspection points, methods) • description of the maintenance intervals to be observed during <X> years of the project, with associated instructions (at least a description of maintenance activities and description of

	necessary materials and energy) *Explanation* The underlying objective of the management and maintenance plan is to achieve efficient and sustainable maintenance and management of the project and to obtain sufficient information about the materials used in the end, so that this too can be used for reconstruction or demolition and the associated temporary functional loss and maintenance costs. Depending on the contract, some or all of this plan may also be completed by the contracting authority itself. The plan is also ultimately intended to allow works schedules to be better harmonised with each other. The contracting authority must itself assess to what extent this condition is applicable to all projects and when this is disproportionate with respect to the size of the contract. If a change takes place during the [X] years such that a new management and maintenance plan is necessary, separate agreements must be made with the tenderer for this. Provisions for this may also be laid down in the contract. It is recommended to have a maintenance interval form part of the contract.