

Framework Service Contract ENV.D2/FRA/2012/0013

Support to the Implementation and Further Development of the Drinking Water Directive (98/83/EC):

Study on Materials in Contact with Drinking Water

Study Update May 2016

Introduction

It is well established that products such as pipes or valves can by various mechanisms release substances into the drinking water that they are in contact with, or that materials may encourage microbial growth. As a result, these products and materials may pose a significant risk to human health.

The current review of the Drinking Water Directive (DWD) has identified the implementation of Article 10 (Quality assurance of treatment, equipment and materials) by individual Member States as a perceived hindrance to trade.

The European Commission has issued this contract: "Support to the Implementation and Further Development of the Drinking Water Directive (98/83/EC): Study on Materials in contact with Drinking Water" to analyse the problem of materials and products affecting the quality of drinking water; to develop a guidance for users of materials in contact with drinking water (Task 2); and to provide support for a draft inception impact assessment.

Programme

Task 1 Assessment of the Situation is providing an overview of the problem including an indication of its scale, covering:

- Sub-task 1.1 **Legislation, standards, scope**
- Sub-task 1.2 **Market, use, mutual recognition**
- Sub-task 1.3 **Drinking water contamination**
- Sub-task 1.4 **Appropriate materials and products and test methods**

Task 2 Guidance for Users will provide a simple, non-technical summary of the findings of Task 1 aimed at a target audience including householders and plumbers.

Task 3 Support to draft an Inception Impact Assessment will explain why action may be needed at EU level and why it is necessary to work on this initiative.

Timescale

The study is being undertaken from November 2015 to November 2016.

Information/data collection for Task 1 is being completed by the end of June and initial conclusions from Task 1 are in preparation. Task 2 begins in June and Task 3 in August.

Consortium

This contract is being undertaken by a consortium of partners led by Umweltbundesamt GmbH (Austria) and comprising: WRc (UK), KWR (Netherlands), OIEau (France) and IzVRS (Slovenia).

Assessment of the Situation (Task 1)

Legislation, standards, scope (Task 1.1)

This is defining a preliminary product 'scope' that could be subject to EU legislation by identifying materials and products in EU and national legislation, test methods and standards, and prioritising those of most concern.

EU legislation (including Drinking Water Directive (DWD), Construction Products Directive/Regulation (CPD/R), Biocidal Products Regulation (BPR), Food Contact Materials (FCM) Regulation and Substances of Very High Concern (SVHC) Regulation) is being examined to determine interactions, commonalities and good practice, that might assist resolution of Article 10 issues.

The current review of DWD/Article 10 is generating position papers from stakeholders that are providing additional insight. For example the recent European Heating Industry EHI Position on the DWD Review which recommends drawing lessons on harmonisation from the Gas Appliances Regulation (GAR).

National legislation, regulation and approvals (including DE, NL, F, UK, P, PI) are being examined and compared, identifying where the main differences and similarities lie in approach, responsibilities, scope, requirements, etc.

The differences between the US requirements for materials/product and those in the EU are being examined, against the background of the potential Transatlantic Trade and Investment Partnership (TTIP).

As China has emerged as a major manufacturing base for EU companies, Chinese companies are becoming major suppliers of products in their own right, and there is a potential US-China trade deal, the requirements for materials in contact with drinking water in China are also being considered.

2016 is a time of change for EU approaches to Article 10, perhaps prompted by the DWD Review and the annual Symposia and Round Tables. The Project Team has become aware of several new initiatives to taken into consideration:

- 4MS 2016 programme which is placing greater emphasis on developing mutual recognition of their national schemes.
- Draft Portuguese Regulation – the first new national regulation to completely embrace 4MS approach.
- Greater involvement of the industrial sector:
 - ICPCDW activities – proposed plastic scheme, elastomers scheme in preparation.
 - Trade association position papers.

How can you assist the Project Team:

- Providing documents that your organisation is able to share – such as position papers on materials/products in contact with drinking water, experience of members with regulations, testing, approvals and views on potential solutions.
- Providing information on the new initiatives this year that are seeking to speed-up the harmonisation of requirements across Europe.

Market, use, mutual recognition (Task 1.2)

This is identifying

- The major players
 - Trade associations, authorities, companies
- Economic information
 - Estimating materials and products currently installed,
 - Estimating EU investments and expenditures
 - Estimating materials and products annually sold on the EU and trends,
 - Estimating intra-EU trade and transboundary sales,
- Assessing if current approvals represent barriers to intra-EU trade,

Some initial findings are highlighted below.

Organisation of industry

The organisation of industry sectors in EU that are engaged with materials/products in contact with drinking water have been reviewed and the main players identified.

Table 1 highlights the national membership/representation of a selection of trade associations that are engaged with DWD Review/Article 10, covering products for distribution systems and building plumbing and EurEau the association for the water companies.

Membership is indicated by green so industry in Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Spain, Sweden, UK and Switzerland stand out as being widely represented across the associations. However, industry in 17 MS has limited or no representation.

Several thousand companies are engaged with the existing approval schemes (Table 2) and this provides a measure of the scale of the drinking water contact materials/product sector. The table indicates big differences in the relative size of schemes - range from 50 to 1500 companies and from 131 to 6,700 approvals. The UK separates approvals for the public water system from approvals for building plumbing systems and this indicates a substantial difference in the numbers of companies engaged and range of products: companies 236 for distribution 1161 for plumbing and approvals 439 and 2,500+ respectively.

Installed product base

Rough estimates are being made of the installed product base:

- Approximately 4.7m km of pipe in the water distribution system of the EU.
 - proportions of different materials are being estimated – highly variable between MS
 - sourcing more accurate figures for valves, pumps and other fittings
- Approximately 130m service pipes
 - Estimating numbers of associated ferrules, stopcocks, meters
- Approximately 1.22b taps and 406m showers (from previously published Ecodesign/MEErP report).

Annual investment in products

The replacement of existing infrastructure is dependent on service life and of course availability of financial resources. Whilst fixed passive equipment such as pipes and joints have a relatively long expected service life (50, 100, 100+ years), fittings with a mechanical

Table 1 National representation in the membership of a selection of EU trade associations

	Chemicals	Copper	Food Contact	Plastic pipe	Ductile iron	Taps	Pumps	Treatment	Supply chain	Vending	Water Industry
	CEFIC	IWCC	FCA	TEPPFA	EADIPS	CIER	Europump	EWTA	Aqua Europa	EVA	EurEau
Austria											
Belgium											
Bulgaria											
Croatia											
Cyprus											
Czech Republic											
Denmark											
Estonia											
Finland											
France											
Germany											
Greece											
Hungary											
Ireland											
Italy											
Latvia											
Lithuania											
Luxembourg											
Malta											
Netherlands											
Poland											
Portugal											
Romania											
Slovakia											
Slovenia											
Spain											
Sweden											
United Kingdom											
Norway											
Switzerland											

Table 2 Number of companies holding approval with major EU schemes and number of approvals issued.

Country	Approval	Number of approvals	Number of companies holding approvals
France	ACS	4269	1040
Netherlands	Kiwa	345	210
UK	DWI Regulation 31 Compliance	439	236
	WRAS Materials Approval	2515	1161
	WRAS Product Approval	6723	1478
Germany	dvgw	2000+	TBC
Belgium	Hydrocheck	234	118
Denmark	GTD	131	53
USA	NSF61	TBC	1603
USA	NSF 60	TBC	1155

action – pumps, valves, meters, taps – require more maintenance and have shorter expected service life. Rough estimates are being made of annual investment:

- Network pipe replacement rates range from 0.5 to 1.2 % per annum so complete replacement in 80 to 200 years.
 - EU investment in renewal is roughly estimated at Euro 10 to 12 billion per annum – of which Euro 1.2 to 1.4 billion on products (pipes, fittings etc).
 - Teppfa estimates EU plastic pipe production @ Euro 3 billion (sewage, drinking, surface water, plumbing, other)
 - There appears to be a decline of traditional pipe materials, growth in the use of plastics and growth in use of 'other' materials which includes repair techniques – coatings, linings.
- Taps – Euro 4.7 billion

Trade

Information from Eurostat is being examined covering: plastic, cementitious, metallic and assembled product categories. Judgements have to be made of what proportion can be attributed to contact with drinking water - best guesses have had to be used by other studies. What is particularly useful is advice from trade associations on how they estimate market sector's trade in their materials/products from Eurostat data.

Barriers

This important aspect of the project is identifying the issues that may need to be considered/addressed by the Commission. But it is not sufficient to list these we are collecting case studies that illustrate the actual impact on business. Issues include:

- Lack of availability of information.
 - Requires investment of resources to understand the differing requirements and for keeping up to date.
 - Figawa found few national Product Contact points could respond effectively.
- Ongoing development of new schemes and requirements without harmonisation.
 - Cannot launch a compliant product simultaneously across Europe.
 - May need a portfolio of products to meet all national requirements.
- Cost of approvals.
 - Familiarising with requirements, application fees, auditing fees, testing fees, certification fees, renewals.
 - Repeating same things for different MS.
 - Fees are the same regardless of size of company.
- Delays to market,
 - Approval timeframes too long.
 - Lost turnover.
- Challenge to obtain confidential composition information from supply chain.
 - Lack of harmonised positive lists.
- Need to repeat same procedures for each MS
- Reapprovals.
 - Uncertainty – different periods of validity, difficult to synchronise for multi-material/multi-component products.
- Lack of enforcement and market surveillance.
 - Unfair competition.
- Advantages? Market protection?

Mutual recognition

Few examples of 'mutual recognition' – more examples of one-way 'recognition' of another country's scheme. Most national schemes contain clauses for recognising other test results, but these are onerous and require the applicant to make the effort. The 4MS 2016 programme includes development of principles for mutual recognition.

How can you assist the Project Team:

- Providing information on the EU market sector concerning your (organisation's) materials/products of interest: volume currently installed, annual sales, trends in demand.
- Case studies on specific experience of national regulations, testing requirements or approvals causing barriers to trade.
- Case studies on specific experience of either 'mutual recognition' or 'acceptance' of approval or test results between member states.

Drinking water contamination (Task 1.3)

This is identifying materials and products with the highest risk to drinking water quality (microbiological, chemical, and aesthetic/organoleptic) providing lessons learned from literature review and by tapping into the experience from manufacturers and test labs.

The most common effects relate to microbiological, organoleptic and metals contamination rather than chemical contamination.

How can you assist the Project Team:

- We are still seeking additional data concerning the pass/fail of material types during testing.
- We are still seeking case studies that describe water quality sample failures and incidents that have been attributed to materials or products.

Appropriate materials and products and test methods Task 1.4

This is identifying reliable materials and products and suitable commonly used testing requirements including an estimate of their cost impacts.

It involves:

- Drawing up lists and characterise appropriate and reliable materials/products currently in use.
- Compiling test methods and standards used in 7 MS (F, DE, NL, UK, P, D, PL), pass/fail criteria and other requirements for approvals. Identify what is commonalities and requirements.
- Providing a rough economic assessment of the application of test methods.
- Analysing to what extent EN test method standards are applicable and how far EN test methods need to be developed/amended.

From this a judgement will be made on:

- Whether there are significant product//material quality differences

- Whether it is feasible to set minimum EU requirements or performance classes for materials/products that are currently in use, and
- What test methods and approval systems would therefore be suitable.

How can you assist the Project Team:

- Views on testing
 - Which tests that apply to your materials/products of interest provide the most relevant information on a material or product's fitness for use in contact with drinking water?
 - Which tests, if any, have the least added value? Are all tests always needed?
 - What are the most time consuming and costly aspects in the testing process?
- What step(s) do you (your organisation) believe necessary so that a test report from one laboratory/Member State is accepted without any restriction by approval bodies from Member States?

Guidance for Users (Task 2)

This will provide a simple, non-technical summary based on the findings of Task 1 aimed at a target audience including householders and plumbers. This is to help them understand which materials are not appropriate for use in household plumbing systems. The format will be 20 to 30 text pages including illustrations and it is intended that it would be made available for use by EU MS. The design and organization of content is currently in progress, as is collection of case studies and illustrations.

How can you assist the Project Team:

- Providing examples of existing national guides for the public that include advice on materials in contact with drinking water.
- Providing case studies that can be used to illustrate the issues the guide.
- Providing good quality photographs to illustrate materials/products and the issue of impacts on water quality.

Support to Commission in drafting an Inception Impact Assessment (Task 3)

Task 3 will support the drafting of an Inception Impact Assessment by the Commission. It will explain why action may be needed at EU level concerning Article 10 and why it is necessary for the Commission to work on an initiative. It will be prepared to a standard allowing the Commission to move to consultation in an expeditious manner. The draft will not be longer than 10 pages and will follow the accepted structure and content of an Inception Impact Assessment:

- A. Context, Subsidiarity Check and Objectives
- B. Option Mapping
- C. Data Collection and Better Regulation Instruments
- D. Information on the Impact Assessment Process
- E. Preliminary Assessment of Expected Impacts

Contact

If you wish to provide information relevant to the study, please contact the Project Team by

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