

# ANNEX 6

## Supporting information on radionuclides

### A6.1 Guidance levels for radionuclides in drinking-water

**Table A6.1** Guidance levels for radionuclides in drinking-water

Radio-nuclide	Guidance level (Bq/l) <sup>a</sup>	Radio-nuclide	Guidance level (Bq/l) <sup>a</sup>	Radio-nuclide	Guidance level (Bq/l) <sup>a</sup>	Radio-nuclide	Guidance level (Bq/l) <sup>a</sup>
<sup>3</sup> H	10 000	<sup>71</sup> Ge	10 000	<sup>105</sup> Rh	1 000	<sup>129</sup> Cs	1 000
<sup>7</sup> Be	10 000	<sup>73</sup> As	1 000	<sup>103</sup> Pd	1 000	<sup>131</sup> Cs	1 000
<sup>14</sup> C	100	<sup>74</sup> As	100	<sup>105</sup> Ag	100	<sup>132</sup> Cs	100
<sup>22</sup> Na	100	<sup>76</sup> As	100	<sup>110m</sup> Ag	100	<sup>134</sup> Cs	10
<sup>32</sup> P	100	<sup>77</sup> As	1 000	<sup>111</sup> Ag	100	<sup>135</sup> Cs	100
<sup>33</sup> P	1 000	<sup>75</sup> Se	100	<sup>109</sup> Cd	100	<sup>136</sup> Cs	100
<sup>35</sup> S	100	<sup>82</sup> Br	100	<sup>115</sup> Cd	100	<sup>137</sup> Cs	10
<sup>36</sup> Cl	100	<sup>86</sup> Rb	100	<sup>115m</sup> Cd	100	<sup>131</sup> Ba	1 000
<sup>45</sup> Ca	100	<sup>85</sup> Sr	100	<sup>111</sup> In	1 000	<sup>140</sup> Ba	100
<sup>47</sup> Ca	100	<sup>89</sup> Sr	100	<sup>114m</sup> In	100	<sup>140</sup> La	100
<sup>46</sup> Sc	100	<sup>90</sup> Sr	10	<sup>113</sup> Sn	100	<sup>139</sup> Ce	1 000
<sup>47</sup> Sc	100	<sup>90</sup> Y	100	<sup>125</sup> Sn	100	<sup>141</sup> Ce	100
<sup>48</sup> Sc	100	<sup>91</sup> Y	100	<sup>122</sup> Sb	100	<sup>143</sup> Ce	100
<sup>48</sup> V	100	<sup>93</sup> Zr	100	<sup>124</sup> Sb	100	<sup>144</sup> Ce	10
<sup>51</sup> Cr	10 000	<sup>95</sup> Zr	100	<sup>125</sup> Sb	100	<sup>143</sup> Pr	100
<sup>52</sup> Mn	100	<sup>93m</sup> Nb	1 000	<sup>123m</sup> Te	100	<sup>147</sup> Nd	100
<sup>53</sup> Mn	10 000	<sup>94</sup> Nb	100	<sup>127</sup> Te	1 000	<sup>147</sup> Pm	1 000
<sup>54</sup> Mn	100	<sup>95</sup> Nb	100	<sup>127m</sup> Te	100	<sup>149</sup> Pm	100
<sup>55</sup> Fe	1 000	<sup>93</sup> Mo	100	<sup>129</sup> Te	1 000	<sup>151</sup> Sm	1 000
<sup>59</sup> Fe	100	<sup>99</sup> Mo	100	<sup>129m</sup> Te	100	<sup>153</sup> Sm	100
<sup>56</sup> Co	100	<sup>96</sup> Tc	100	<sup>131</sup> Te	1 000	<sup>152</sup> Eu	100
<sup>57</sup> Co	1 000	<sup>97</sup> Tc	1 000	<sup>131m</sup> Te	100	<sup>154</sup> Eu	100
<sup>58</sup> Co	100	<sup>97m</sup> Tc	100	<sup>132</sup> Te	100	<sup>155</sup> Eu	1 000
<sup>60</sup> Co	100	<sup>99</sup> Tc	100	<sup>125</sup> I	10	<sup>153</sup> Gd	1 000
<sup>59</sup> Ni	1 000	<sup>97</sup> Ru	1 000	<sup>126</sup> I	10	<sup>160</sup> Tb	100
<sup>63</sup> Ni	1 000	<sup>103</sup> Ru	100	<sup>129</sup> I	1	<sup>169</sup> Er	1 000
<sup>65</sup> Zn	100	<sup>106</sup> Ru	10	<sup>131</sup> I	10	<sup>171</sup> Tm	1 000

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Radio-nuclide	Guidance level (Bq/l) <sup>a</sup>	Radio-nuclide	Guidance level (Bq/l) <sup>a</sup>	Radio-nuclide	Guidance level (Bq/l) <sup>a</sup>	Radio-nuclide	Guidance level (Bq/l) <sup>a</sup>
<sup>175</sup> Yb	1 000	<sup>210</sup> Pb <sup>b</sup>	0.1	<sup>231</sup> U	1 000	<sup>243</sup> Am	1
<sup>182</sup> Ta	100	<sup>206</sup> Bi	100	<sup>232</sup> U	1	<sup>242</sup> Cm	10
<sup>181</sup> W	1 000	<sup>207</sup> Bi	100	<sup>233</sup> U	1	<sup>243</sup> Cm	1
<sup>185</sup> W	1 000	<sup>210</sup> Bi <sup>b</sup>	100	<sup>234</sup> U <sup>b</sup>	1	<sup>244</sup> Cm	1
<sup>186</sup> Re	100	<sup>210</sup> Po <sup>b</sup>	0.1	<sup>235</sup> U <sup>b</sup>	1	<sup>245</sup> Cm	1
<sup>185</sup> Os	100	<sup>223</sup> Ra <sup>b</sup>	1	<sup>236</sup> U <sup>b</sup>	1	<sup>246</sup> Cm	1
<sup>191</sup> Os	100	<sup>224</sup> Ra <sup>b</sup>	1	<sup>237</sup> U	100	<sup>247</sup> Cm	1
<sup>193</sup> Os	100	<sup>225</sup> Ra	1	<sup>238</sup> U <sup>b,c</sup>	10	<sup>248</sup> Cm	0.1
<sup>190</sup> Ir	100	<sup>226</sup> Ra <sup>b</sup>	1	<sup>237</sup> Np	1	<sup>249</sup> Bk	100
<sup>192</sup> Ir	100	<sup>228</sup> Ra <sup>b</sup>	0.1	<sup>239</sup> Np	100	<sup>246</sup> Cf	100
<sup>191</sup> Pt	1 000	<sup>227</sup> Th <sup>b</sup>	10	<sup>236</sup> Pu	1	<sup>248</sup> Cf	10
<sup>193m</sup> Pt	1 000	<sup>228</sup> Th <sup>b</sup>	1	<sup>237</sup> Pu	1 000	<sup>249</sup> Cf	1
<sup>198</sup> Au	100	<sup>229</sup> Th	0.1	<sup>238</sup> Pu	1	<sup>250</sup> Cf	1
<sup>199</sup> Au	1 000	<sup>230</sup> Th <sup>b</sup>	1	<sup>239</sup> Pu	1	<sup>251</sup> Cf	1
<sup>197</sup> Hg	1 000	<sup>231</sup> Th <sup>b</sup>	1 000	<sup>240</sup> Pu	1	<sup>252</sup> Cf	1
<sup>203</sup> Hg	100	<sup>232</sup> Th <sup>b</sup>	1	<sup>241</sup> Pu	10	<sup>253</sup> Cf	100
<sup>200</sup> Tl	1 000	<sup>234</sup> Th <sup>b</sup>	100	<sup>242</sup> Pu	1	<sup>254</sup> Cf	1
<sup>201</sup> Tl	1 000	<sup>230</sup> Pa	100	<sup>244</sup> Pu	1	<sup>253</sup> Es	10
<sup>202</sup> Tl	1 000	<sup>231</sup> Pa <sup>b</sup>	0.1	<sup>241</sup> Am	1	<sup>254</sup> Es	10
<sup>204</sup> Tl	100	<sup>233</sup> Pa	100	<sup>242</sup> Am	1 000	<sup>254m</sup> Es	100
<sup>203</sup> Pb	1 000	<sup>230</sup> U	1	<sup>242m</sup> Am	1		

<sup>a</sup> Guidance levels were rounded to the nearest order of magnitude by averaging the log scale values (to 10<sup>n</sup> if the calculated value was below 3 × 10<sup>n</sup> and to 10<sup>n+1</sup> if the value was 3 × 10 or above). For example, if the calculated value was 2 Bq/L (i.e. 2 × 10<sup>0</sup>), the guidance level was rounded to 10<sup>0</sup> (i.e. = 1) whereas, if the calculated value was 3 Bq/L (i.e. 3 × 10<sup>0</sup> or above), the guidance level was rounded to 10<sup>1</sup> (i.e. = 10).

<sup>b</sup> Natural radionuclides.

<sup>c</sup> The provisional guideline value for uranium in drinking-water is 30 µg/l based on its chemical toxicity for the kidney (see [section 8.5](#)).

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## A6.3 References for further information about analytical methods and treatment technologies for radionuclides

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