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2 EMA/CHMP/465616/2014  
3 Committee for Medicinal Products for Human Use (CHMP)

4 **Guideline on core SmPC and package leaflet for sodium**  
5 **fluoride (<sup>18</sup>F)**  
6 **Draft**

Draft Agreed by Radiopharmaceuticals drafting group	01 July 2014
Adoption by CHMP for release for consultation	24 July 2014
Start of public consultation	31 July 2014
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Comments should be provided using this [template](#). The completed comments form should be sent to [radiopharmaceuticalsDG@ema.europa.eu](mailto:radiopharmaceuticalsDG@ema.europa.eu).

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<b>Keywords</b>	<b><i>Radiopharmaceuticals, radionuclide, kit for radiopharmaceutical preparation, core SmPC, core Package Leaflet, sodium fluoride (<sup>18</sup>F)</i></b>
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11 **Guideline on core SmPC and Package Leaflet for**  
12 **sodium fluoride (<sup>18</sup>F)**

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## 21 **Executive summary**

22 This guideline describes the information to be included in the Summary of Products Characteristics  
23 (SmPC) and Package Leaflet for sodium fluoride (18F).

### 24 **1. Introduction (background)**

25 The purpose of this core SmPC and Package Leaflet is to provide applicants and regulators with  
26 harmonised guidance on the information to be included in the Summary of product characteristics  
27 (SmPC) for sodium fluoride (18F)<sup>1</sup>. This guideline should be read in conjunction with the core SmPC  
28 and Package Leaflet for Radiopharmaceuticals, the QRD product information templates and the  
29 guideline on Summary of Product Characteristics.

30 This sodium fluoride (18F) Core SmPC has been prepared on the basis, and taking into account the  
31 available published scientific literature dated from more than 10 years. The indications mentioned in  
32 section 4.1 of the SmPC are supported by this literature.

33 However, any new application for a radiopharmaceutical product containing sodium fluoride (18F)  
34 should be submitted with all the needed and adequate data in order to be valid.

### 35 **2. Scope**

36 This core SmPC and Package Leaflet covers sodium fluoride (18F).

### 37 **3. Legal basis**

38 This guideline has to be read in conjunction with Article 11 of Directive 2001/83 as amended, and the  
39 introduction and general principles (4) and part I of the Annex I to Directive 2001/83 as amended.

### 40 **4. Core SmPC and Package Leaflet for sodium fluoride (<sup>18</sup>F)**

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<sup>1</sup> Concept paper on the harmonisation and update of the clinical aspects in the authorised conditions of use for radiopharmaceuticals and other diagnostic medicinal products (EMA/CHMP/EWP/12052/2008)

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**CORE SmPC and Package Leaflet for sodium fluoride (<sup>18</sup>F)**

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**ANNEX I**  
**SUMMARY OF PRODUCT CHARACTERISTICS**

96 <▼ This medicinal product is subject to additional monitoring. This will allow quick identification of  
97 new safety information. Healthcare professionals are asked to report any suspected adverse reactions. See  
98 section 4.8 for how to report adverse reactions.>  
99

## 100 **1. NAME OF THE MEDICINAL PRODUCT**

101 {(Invented) name strength} solution for injection  
102  
103  
104

## 105 **2. QUALITATIVE AND QUANTITATIVE COMPOSITION**

106  
107 One Each mL contains xxxx GBq of sodium fluoride (<sup>18</sup>F) at date and time of calibration.  
108

109 The activity per vial ranges from <XXX> GBq to <XXX> GBq at the date and time of calibration.  
110

111 Fluorine (<sup>18</sup>F) decays to stable oxygen (<sup>18</sup>O) with a half-life of 110 minutes by emitting a positronic  
112 radiation of maximum energy of 634 keV, followed by photonic annihilation radiations of 511 keV.  
113

114 Excipient(s) with known effect:

115 Each mL contains 3.57 mg of sodium ions.

116 For the full list of excipients, see section 6.1.  
117  
118

## 119 **3. PHARMACEUTICAL FORM**

120  
121 Solution for injection.

122 Colourless solution.  
123  
124

## 125 **4. CLINICAL PARTICULARS**

### 127 **4.1. Therapeutic indications**

128  
129 This medicinal product is for diagnostic use only.  
130

131 Sodium fluoride (<sup>18</sup>F) positron emission tomography (PET) is indicated for functional imaging in diseases  
132 where abnormally altered osteogenic activity is the diagnostic target. The following indications have  
133 been particularly documented:

134 - Detection and localisation of bone metastases in case of cancer in adults.

135 - As an aid in the evaluation of back pain of ambiguous origin in adults, when conventional  
136 imaging modalities are not conclusive.

137 - As an aid in the detection of the presence of bone lesions related to suspected child abuse.  
138  
139

### 140 **4.2. Posology and method of administration**

141 Posology

#### 144 Adults

145 Recommended activity for an adult weighing 70 kg is 370 MBq (the activity will be adapted to the body  
146 mass, the type of camera used, PET/CT, and acquisition mode. The image could vary from 100-400  
147 MBq), administered by direct intravenous injection.

148  
149 If required, sodium fluoride (<sup>18</sup>F) PET examinations can be repeated within a short period of time.

150  
151 Special populations

152  
153 Patients with renal impairment

154 In case of renal impairment, exposure to ionising radiation can be increased. This must be taken into  
155 account when calculating the activity to be administered.

156  
157 Paediatric population

158 The use in children and adolescents has to be considered carefully, based upon clinical needs and  
159 assessing the risk/benefit ratio in this patient group. The activities to be administered to children and  
160 adolescents may be calculated according to the recommendations of the EANM paediatric task group  
161 Dosage Card; the activity administered to children and to adolescents may be calculated by multiplying a  
162 baseline activity (for calculation purposes) by the body-mass-dependent coefficients given in the table  
163 below.

$$A[\text{MBq}]_{\text{Administered}} = \text{Baseline Activity} \times \text{Coefficient}$$

164  
165  
166 The Baseline Activity for 2D imaging is 26 MBq and for 3D imaging 14 MBq (recommended in  
167 children).

168

Weight [kg]	Coefficient	Weight [kg]	Coefficient	Weight [kg]	Coefficient
<b>3</b>	1	<b>22</b>	5.29	<b>42</b>	9.14
<b>4</b>	1.14	<b>24</b>	5.71	<b>44</b>	9.57
<b>6</b>	1.71	<b>26</b>	6.14	<b>46</b>	10.00
<b>8</b>	2.14	<b>28</b>	6.43	<b>48</b>	10.29
<b>10</b>	2.71	<b>30</b>	6.86	<b>50</b>	10.71
<b>12</b>	3.14	<b>32</b>	7.29	<b>52-54</b>	11.29
<b>14</b>	3.57	<b>34</b>	7.72	<b>56-58</b>	12.00
<b>16</b>	4.00	<b>36</b>	8.00	<b>60-62</b>	12.71
<b>18</b>	4.43	<b>38</b>	8.43	<b>64-66</b>	13.43
<b>20</b>	4.86	<b>40</b>	8.86	<b>68</b>	14.00

169

170

171

172 Method of administration

173 The injection of sodium fluoride (<sup>18</sup>F) must be intravenous in order to avoid irradiation as a result of local  
174 extravasation, as well as imaging artefacts.

175

176 Precautions to be taken before handling or administration of the medicinal product

177 For instructions on dilution of the medicinal product before administration, see section 12.

178 For patient preparation, see section 4.4.

179 The activity of sodium fluoride (<sup>18</sup>F) has to be measured with an activimeter immediately prior to  
180 injection.

181

182 Image acquisition

183 The emission scans are usually started 60 minutes after the injection of sodium fluoride ( $^{18}\text{F}$ ). Provided a  
184 sufficient activity remains for adequate counting statistics, sodium fluoride ( $^{18}\text{F}$ )-PET can also be  
185 performed up to two or three hours after administration, thus reducing background activity. Voiding  
186 immediately prior to imaging is recommended in order to reduce the activity in the pelvis.

187

188

### 189 **4.3. Contraindications**

190

- 191 • Hypersensitivity to the active substance or to any of the excipients listed in section 6.1..
- 192 • Pregnancy (see section 4.6)

193

194

### 195 **4.4. Special warnings and precautions for use**

196

#### 197 Individual benefit/risk justification

198 For each patient, the radiation exposure must be justifiable by the likely benefit. The activity administered  
199 should in every case be as low as reasonably achievable to obtain the required diagnostic information.

#### 200 Renal impairment

201 Careful consideration of the benefit risk ratio in these patients is required since an increased radiation  
202 exposure is possible.

203

#### 204 Paediatric population

205 For information on the use in paediatric population, see section 4.2 and 5.1.

206 Careful consideration of the indication is required since the effective dose per MBq is higher than in  
207 adults (see section 11)

208

#### 209 Patient preparation

210 The patient should be well hydrated before the start of the examination and urged to void as often as  
211 possible during the first hours after the study in order to reduce radiation.

212

#### 213 Interpretation of sodium fluoride ( $^{18}\text{F}$ ) PET images

214 Sodium fluoride ( $^{18}\text{F}$ ) has a higher sensitivity for the detection of bone lesions than other “bone-seeking”  
215 tracers ( $^{99\text{m}}\text{Tc}$ -labelled phosphate and phosphonic acid derivatives). Since sodium fluoride ( $^{18}\text{F}$ ) does not  
216 show secondary cancerous processes directly, but notifies cancer effects (osteogenic activity following  
217 osseous lesions), sodium fluoride ( $^{18}\text{F}$ ) is less effective for the detection of early stages of bone  
218 metastases, like bone marrow metastases without substantial bone damage.

219 Hardware fusion of the functional sodium fluoride ( $^{18}\text{F}$ ) PET images with morphologic images e.g. PET-  
220 CT can lead to an increased sensitivity and specificity in bone diagnostics.

221 As there is no significant difference in uptake by malignant or benign lesions, the differentiation between  
222 bone metastases and non-malignant bone lesions benefits from the analysis of PET and CT image fusion,  
223 better obtained from hybrid PET-CT imaging, or if not available from supplemental diagnostic procedures  
224 (MRI, CT).

225

#### 226 After the procedure

227 Close contact with infants and pregnant women should be restricted during the initial 12 hours following  
228 the injection.

229

#### 230 Specific warnings

231 Depending on the time when you administer the injection,, the content of sodium given to the patient may  
232 in some cases be greater than 1 mmol (23mg). This should be taken into account in patient on low sodium  
233 diet.



234  
235 Precautions with respect to environmental hazard are in section 6.6.  
236

#### 237 **4.5. Interaction with other medicinal products and other forms of interaction**

238  
239 No interaction studies have been performed.  
240

#### 242 **4.6. Fertility, pregnancy and lactation**

##### 243 Women of childbearing potential

244  
245 When an administration of radiopharmaceuticals to a woman of childbearing potential is intended, it is  
246 important to determine whether or not she is pregnant. Any woman who has missed a period should be  
247 assumed to be pregnant until proven otherwise. If in doubt about her potential pregnancy (if the woman  
248 has missed a period, if the period is very irregular, etc.), alternative techniques not using ionising  
249 radiation (if there are any) should be offered to the patient.  
250

##### 251 Pregnancy

252 The use of sodium fluoride ( $^{18}\text{F}$ ) is contraindicated in pregnant women due to the radiation exposure (see  
253 section 4.3.)  
254

##### 255 Breastfeeding

256 Before administering radiopharmaceuticals to a mother who is breastfeeding consideration should be  
257 given to the possibility of delaying the administration of radionuclide until the mother has ceased  
258 breastfeeding, and to what is the most appropriate choice of radiopharmaceuticals, bearing in mind the  
259 secretion of activity in breast milk. If the administration is considered necessary, breastfeeding should be  
260 interrupted for 12 hours and the expressed feeds discarded.  
261 Close contact with infants should be restricted during the initial 12 hours following injection.  
262  
263

#### 264 **4.7. Effects on ability to drive and use machines**

265  
266 Not relevant.  
267

#### 269 **4.8. Undesirable effects**

270  
271 Exposure to ionising radiation is linked with cancer induction and a potential for development of  
272 hereditary defects. As the effective dose is 8.9 mSv when the maximal recommended activity of 350 MBq  
273 is administered for an adult of 70 kg, these adverse reactions are expected to occur with a low probability.  
274

##### 275 Reporting of suspected adverse reactions

276 Reporting suspected adverse reactions after authorisation of the medicinal product is important. It allows  
277 continued monitoring of the benefit/risk balance of the medicinal product. Healthcare professionals are  
278 asked to report any suspected adverse reactions via the national reporting system listed in [Appendix V](#)\*.  
279

280 *[\*For the printed material, please refer to the guidance of the annotated QRD template.]*  
281

#### 282 **4.9. Overdose**

283  
284 In the event of administration of a radiation overdose with sodium fluoride ( $^{18}\text{F}$ ) the absorbed dose to the  
285 patient should be reduced where possible by increasing the elimination of the radionuclide from the body

286 by forced diuresis and frequent bladder voiding. It might be helpful to estimate the effective dose that was  
287 applied.  
288  
289

## 290 **5. PHARMACOLOGICAL PROPERTIES**

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### 292 **5.1. Pharmacodynamic properties**

293

294 Pharmacotherapeutic group: Diagnostic radiopharmaceuticals, other diagnostic radiopharmaceuticals for  
295 tumour detection, ATC code: V09IX06  
296

#### 297 Pharmacodynamic effects

298 At the chemical concentrations used for diagnostic examinations, sodium fluoride ( $^{18}\text{F}$ ) does not appear to  
299 have any pharmacodynamic activity.  
300

301

### 302 **5.2. Pharmacokinetic properties**

303

#### 304 Distribution

305 Following intravenous administration, about 50% of the sodium fluoride ( $^{18}\text{F}$ ) is rapidly taken up by the  
306 skeleton where it remains during the time period of its radioactive decay. The remainder of the sodium  
307 fluoride ( $^{18}\text{F}$ ) is distributed into the extracellular fluid and eliminated by renal excretion within a few  
308 hours. The extent of binding of sodium fluoride ( $^{18}\text{F}$ ) to plasma proteins is not known.  
309

#### 310 Organ uptake

311 Due to its affinity to bone mineral sodium fluoride ( $^{18}\text{F}$ ) becomes 3 – 10 times more incorporated into  
312 bone regions affected by malignant processes with resulting osteoblastic activity or osteolytic defects than  
313 in non-affected recumbent bone. Non-cancerous traumatic, erosive or inflammatory lesions of bone  
314 structure are also connected with increased osteogenesis. Sodium fluoride ( $^{18}\text{F}$ ) therefore is a marker of  
315 bone reactive processes of cancerous or traumatic affliction. It detects non-malignant regions of  
316 physiologically or pathologically enhanced bone metabolism as well.

317 About 50% of the sodium fluoride ( $^{18}\text{F}$ ) is rapidly taken up by the skeleton where it remains during the  
318 time period of its radioactive decay. Sodium fluoride ( $^{18}\text{F}$ ) normally accumulates in the skeleton  
319 symmetrically, with greater deposition in the axial skeleton and in the bones around joints than in the  
320 appendicular skeleton and shafts of long bones. Increased deposition occurs around fracture sites and in  
321 bones affected by osteomyelitis, fibrous dysplasia, spondylitis tuberculosis, Paget's disease, hyperostosis  
322 frontalis interna, myositis ossificans or tumours, and in rapidly growing epiphyses.  
323

#### 324 Elimination

325 Elimination of sodium fluoride ( $^{18}\text{F}$ ) is chiefly renal, with 20 % of activity being excreted in urine in the 2  
326 hours following injection.  
327

328

### 329 **5.3. Preclinical safety data**

330

331 Toxicological studies with Sprague-Dawley rats have demonstrated that with a single intravenous  
332 injection of sodium fluoride ( $^{18}\text{F}$ ) and 5 mL/kg no deaths were observed. This product is not intended for  
333 regular or continuous administration.

334 Mutagenicity studies and long-term carcinogenicity studies have not been carried out.  
335  
336  
337

338 **6. PHARMACEUTICAL PARTICULARS**

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340 **6.1. List of excipients**

341

342 [*Product specific*]

343

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345 **6.2. Incompatibilities**

346

347 This medicinal product must not be mixed with other medicinal products except those mentioned in  
348 section 12.

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351 **6.3. Shelf life**

352

353 [*Product specific*]

354 Product specific [*It should be indicated at the end of the fabrication time*]

355

356

357 **6.4. Special precautions for storage**

358

359 [*Product specific*]

360 Storage of radiopharmaceuticals should be in accordance with national regulation on radioactive  
361 materials.

362

363

364 **6.5. Nature and contents of the container**

365

366 [*Product specific*]

367 One vial contains <X> to <XXX> mL of solution, corresponding to <XXX> to <XXX> GBq at  
368 calibration time.

369 <Not all pack size may be marketed>

370

371

372 **6.6 Special precautions for disposal and other handling**

373

374 General warnings

375 Radiopharmaceuticals should be received, used and administered only by authorised persons in  
376 designated clinical settings. Their receipt, storage, use, transfer and disposal are subject to the regulations  
377 and/or appropriate licences of the competent official organisation.

378 Radiopharmaceuticals should be prepared by the user in a manner which satisfies both radiation safety  
379 and pharmaceutical quality requirements. Appropriate aseptic precautions should be taken.

380

381 The administration of radiopharmaceuticals creates risks for other persons from external radiation or  
382 contamination from spill of urine, vomiting, etc. Radiation protection precautions in accordance with  
383 national regulations must therefore be taken.

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385 Any unused medicinal product or waste material should be disposed of in accordance with local  
386 requirements.

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389 **7. MARKETING AUTHORISATION HOLDER**

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**8. MARKETING AUTHORISATION NUMBER(S)**

**9. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION**

**10. DATE OF REVISION OF THE TEXT**

**11. DOSIMETRY**

Data listed below are from ICRP 53 Publication and ICRP 80 Publication and are calculated according to the following assumptions: .

Organ	Absorbed dose per activity administered (mGy/MBq)					
	Persons:	Adults	15 year old	10 year old	5 year old	1 year old
Adrenals		0.01	0.012	0.018	0.028	0.052
Bladder		0.22	0.27	0.40	0.61	1.10
Bone surfaces		0.04	0.05	0.079	0.13	0.30
Breasts		0.0061	0.0061	0.0097	0.015	0.030
Gastrointestinal tract						
Stomach		0.0067	0.008	0.013	0.019	0.036
Small intestine		0.0094	0.012	0.018	0.028	0.052
Upper large intestine		0.0089	0.010	0.016	0.026	0.046
Lower large intestine		0.013	0.016	0.025	0.037	0.063
Kidneys		0.020	0.025	0.036	0.053	0.097
Liver		0.0069	0.0084	0.013	0.021	0.039
Lungs		0.0068	0.0084	0.013	0.020	0.039
Ovaries		0.013	0.016	0.023	0.036	0.063
Pancreas		0.0073	0.0096	0.015	0.023	0.044
Red marrow		0.04	0.053	0.088	0.18	0.38
Spleen		0.0074	0.0088	0.014	0.021	0.041
Testes		0.011	0.013	0.021	0.033	0.062
Thyroid		0.0068	0.0084	0.013	0.020	0.036
Uterus		0.019	0.023	0.037	0.057	0.099

Other tissues Remaining organs	0.0084	0.010	0.015	0.024	0.044
<b>Effective Dose (mSv/MBq)</b>	<b>0.024</b>	<b>0.029</b>	<b>0.045</b>	<b>0.074</b>	<b>0.14</b>

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If PET with sodium fluoride ( $^{18}\text{F}$ ) is acquired in 2D mode, the effective dose resulting from the administration of a recommended activity of 370 MBq for an adult weighing 70 kg is about 8.9 mSv. For an administered activity of 370 MBq, the typical radiation dose/doses to the critical organ/organs (bladder, bone surfaces, red marrow, kidneys and uterus) are 81, 15, 15, 7.4 and 7 mGy, respectively.

If PET with sodium fluoride ( $^{18}\text{F}$ ) is acquired in 3D mode, the effective dose resulting from the administration of a recommended activity of 200 MBq for an adult weighing 70 kg is about 4.8 mSv. For an administered activity of 200 MBq the typical radiation dose/doses to the critical organ/organs (bladder, bone surfaces, red marrow, kidneys and uterus) are 44, 8, 8, 4 and 3.8 mGy, respectively.

## 12. INSTRUCTIONS FOR PREPARATION OF RADIOPHARMACEUTICALS

The pack must be checked before use and the activity measured using an activimeter.

The medicinal product may be diluted with sodium chloride 9 mg/mL (0.9%) solution for injection.

Withdrawals should be performed under aseptic conditions. The vials must not be opened before disinfecting the stopper, the solution should be withdrawn via the stopper using a single dose syringe fitted with suitable protective shielding and a disposable sterile needle.

As with any pharmaceutical product, If the integrity of this vial is compromised, the product should not be used.

The solution should be inspected visually prior to use. Only clear solutions, free of visible particles should be used.

Detailed information on this medicinal product is available on the website of the European Medicines Agency <http://www.ema.europa.eu>

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**B. PACKAGE LEAFLET**

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## PACKAGE LEAFLET: INFORMATION FOR THE PATIENT

{(Invented) name strength pharmaceutical form}  
{Active substance(s)}

### Read all of this leaflet carefully before you will be administered this medicine.

- Keep this leaflet. You may need to read it again.
- If you have any further questions, ask your referring doctor or the specialist physician in nuclear medicine who will supervise the procedure.
- If you get any of the side effects, talk to your nuclear medicine doctor. This includes any possible side effects not listed in this leaflet.

### What is in this leaflet:

1. What X is and what it is used for
2. Before X is administered
3. How X is used
4. Possible side effects
5. How X is stored
6. Contents of the pack and other information

### 1. What is X and what it is used for

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This medicine is a radiopharmaceutical product for diagnostic use only.  
X is used for diagnosis in Positron Emission Tomography (PET) examinations and is administered prior to such an examination.

The radioactive substance in X (to show bone metabolism) is detected by PET and is shown as a picture.

Positron Emission Tomography is an imaging technology used in nuclear medicine that produces pictures of cross-sections of living organisms. It works with a minute amount of radioactive pharmaceutical to produce quantitative and precise images of specific metabolic processes in the body. This examination is carried out to help decide on how to treat the illness you are suffering from or you are suspected of suffering from.

### 2. What you need to know before you <take> <use> X

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#### Do not <take> <use> X <:>

- if you are allergic (hypersensitive) to sodium fluoride ( $^{18}\text{F}$ ) or any of the other ingredients of X or to any of the components of the labelled radiopharmaceutical.
- if you are pregnant.

### Warnings and precautions

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546

Take special care with X

547 Inform your nuclear medicine doctor in the following cases;  
548 - if you are pregnant or believe you may be pregnant  
549 - if you are breast-feeding

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551

552 **Before X administration you should:**

553

- 554 • drink plenty of water and to be well hydrated before the start of the examination in order to urinate  
555 as often as possible during the first hours after the study
- 556 • If you come into contact with infants: It is recommended that close contact be avoided between the  
557 patient and infants in the initial 12 hours following the injection.

558

559 **Other medicines and X**

560

561 Please tell to your nuclear medicine if you are taking or have recently taken any other medicines,  
562 including medicines obtained without a prescription.

563

564 **Pregnancy and breast-feeding**

565 If you are pregnant or breast-feeding, think you may be pregnant or are planning to have a baby, ask your  
566 nuclear medicine doctor for advice before taking this medicine.

567

568 You must inform the specialist physician in Nuclear Medicine before the administration of X if there is a  
569 possibility you might be pregnant, if you have missed your period or if you are breast-feeding.

570 When in doubt, it is important to consult your physician or the specialist physician in nuclear medicine  
571 who will supervise the procedure.

572

573 If you are breast-feeding, breast milk may be drawn off before injection and stored for subsequent use.  
574 Breast-feeding should be stopped for at least 12 hours. Any milk produced during this period should be  
575 discarded.

576

577 Please ask your nuclear medicine doctor when you can resume breast-feeding.

578

579

580 **Driving and using machines**

581

582 It is considered unlikely that X will affect your ability to drive or to operate machinery.

583

584 **X contains sodium.**

585

586

587 **3. How to <take> <use> X**

588

589 There are strict laws on the use, handling and disposal of radiopharmaceutical products. X will only be  
590 used in a hospital. This product will only be handled and given to you by people who are trained and  
591 qualified to use it safely. These persons will take special care for the safe use of this product and will  
592 keep you informed of their actions.

593

594 The nuclear medicine doctor supervising the procedure will decide on the quantity of X to be used in your  
595 case. It will be the minimal quantity necessary to get the desired information.

596 The quantity to be administered usually recommended for an adult ranges from 2 to 5 MBq/kg of body  
597 mass.



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**Use in children**

In case of paediatric population, the quantity to be administered will be adapted to the child's body mass.

**Administration of X and conduct of the procedure**

X is administered by single intravenous injection

**Duration of the procedure**

Your nuclear medicine doctor supervising the procedure will inform you about the usual duration of the procedure.

**After administration of X , you should:**

- avoid any close contact with you children for the 12 hours following the injection
- urinate frequently in order to eliminate the product from your body

The Nuclear medicine doctor will inform you if you need to take any special precautions after receiving this medicine. Contact your Nuclear medicine doctor if you have any questions.

**If you have been administered more X than you should**

An overdose is almost impossible because you will only receive a single dose of X precisely controlled by the specialist physician supervising the procedure. However, in the case of an overdose, you will receive the appropriate treatment. The elimination of the radioactive constituents should be increased as much as possible. You should drink as much as possible and frequently empty your bladder. It may become necessary to take diuretics.

Should you have any further question on the use of X, please ask if the nuclear medicine doctor who supervises the procedure.

**4. Possible side effects**

Like all medicines, X can cause side effects, although not everybody gets them.

No serious adverse effects have been observed to date.

This administered radiopharmaceutical will deliver low amounts of ionising radiation with very low risk of cancer and hereditary abnormalities.

Your doctor has considered that the clinical benefit that you will obtain from the procedure with the radiopharmaceutical overcomes the risk due to radiation.

If you get any side effect, please tell your nuclear medicine doctor. This includes any possible side effects not listed in this leaflet.

<Additional side effects in children <and adolescents>>

**Reporting of side effects**

If you get any side effects, talk to your nuclear medicine doctor . This includes any possible side effects not listed in this leaflet. You can also report side effects directly via the national reporting system listed in [Appendix V](#)\*. By reporting side effects you can help provide more information on the safety of this medicine.

[\*For the printed material, please refer to the guidance of the annotated QRD template.]

647 **5. How to store X**

648

649 You will not have to store this medicine. This medicine is stored under the responsibility of the specialist  
650 in appropriate premises. Storage of radiopharmaceuticals will be in accordance with national regulation  
651 on radioactive materials.

652 The information is intended for the specialist only.

653 Do not use this medicine after the expiry date which is stated on the label after {DD MM YYYY at  
654 hh:mm}.

655

656

657 **6. Contents of the pack and other information**

658

659 **What X contains**

660 - The active substance is sodium fluoride (18F). One mL contains 2.0 GBq of sodium fluoride (18F)  
661 at date and time of production

662 - The other ingredients are water for injection, sodium chloride and potassium dihydrogen  
663 phosphate.

664

665 **What X looks like and contents of the pack**

666 The total activity of the vial at that time is therefore between 0.37 GBq and 22.0 GBq.

667

668 **Marketing Authorisation Holder and Manufacturer**

669

670 {Name and address}

671 <{tel}>

672 <{fax}>

673 <{e-mail}>

674

675

676 <For any information about this medicine, please contact the local representative of the Marketing  
677 Authorisation Holder:>

678

**België/Belgique/Belgien**

{Nom/Naam/Name}

<{Adresse/Adres/Anschrift }>

B-0000 {Localité/Stad/Stadt}>

Tél/Tel: + {N° de téléphone/Telefoonnummer/  
Telefonnummer}

<{e-mail}>

**Luxembourg/Luxemburg**

{Nom}

<{Adresse}>

L-0000 {Localité/Stadt}>

Tél/Tel: + {N° de téléphone/Telefonnummer}

<{e-mail}>

**България**

{Име}

<{Адрес}>

{Град} {Пощенски код}>

Тел.: + {Телефонен номер}

<{e-mail}>

**Magyarország**

{Név}

<{Cím}>

H-0000 {Város}>

Tel.: +Telefonszám}

<{e-mail}>

**Česká republika**

{Název}  
<{Adresa}>  
CZ {město}>  
Tel: +{telefonní číslo}  
<{e-mail}>

**Danmark**

{Navn}  
<{Adresse}>  
DK-0000 {by}>  
Tlf: + {Telefonnummer}  
<{e-mail}>

**Deutschland**

{Name}  
<{Anschrift}>  
D-00000 {Stadt}>  
Tel: + {Telefonnummer}  
<{e-mail}>

**Eesti**

(Nimi)  
<(Aadress)>  
EE - (Postiindeks) (Linn)>  
Tel: +(Telefoninumber)  
<{e-mail}>

**Ελλάδα**

{Όνομα}  
<{Διεύθυνση}>  
GR-000 00 {πόλη}>  
Τηλ: + {Αριθμός τηλεφώνου}  
<{e-mail}>

**España**

{Nombre}  
<{Dirección}>  
E-00000 {Ciudad}>  
Tel: + {Teléfono}  
<{e-mail}>

**France**

{Nom}  
<{Adresse}>  
F-00000 {Localité}>  
Tél: + {Numéro de téléphone}  
<{e-mail}>

**Hrvatska**

{Ime}  
<{Adresa}>  
{Poštanski broj} {grad}>

**Malta**

{Isem}  
<{Indirizz}>  
MT-0000 {Belt/Raħal}>  
Tel: + {Numru tat-telefon}  
<{e-mail}>

**Nederland**

{Naam}  
<{Adres}>  
NL-0000 XX {stad}>  
Tel: + {Telefoonnummer}  
<{e-mail}>

**Norge**

{Navn}  
<{Adresse}>  
N-0000 {poststed}>  
Tlf: + {Telefonnummer}  
<{e-mail}>

**Österreich**

{Name}  
<{Anschrift}>  
A-00000 {Stadt}>  
Tel: + {Telefonnummer}  
<{e-mail}>

**Polska**

{Nazwa/ Nazwisko:}  
<{Adres:}>  
PL – 00 000 {Miasto:}>  
Tel.: + {Numer telefonu:}  
<{e-mail}>

**Portugal**

{Nome}  
<{Morada}>  
P-0000–000 {Cidade}>  
Tel: + {Número de telefone}  
<{e-mail}>

**România**

{Nume}  
<{Adresă}>  
{Oraş} {Cod poştal} – RO>  
Tel: + {Număr de telefon}  
<{e-mail}>

Tel: + {Telefonski broj}  
<{e-mail}>

### **Ireland**

{Name}  
<{Address}  
IRL - {Town} {Code for Dublin}>  
Tel: + {Telephone number}  
<{e-mail}>

### **Ísland**

{Nafn}  
<{Heimilisfang}  
IS-000 {Borg/Bær}>  
Sími: + {Símanúmer}  
<{Netfang }>

### **Italia**

{Nome}  
<{Indirizzo}  
I-00000 {Località}>  
Tel: + {Numero di telefono}>  
<{e-mail}>

### **Κύπρος**

{Όνομα}  
<{Διεύθυνση}  
CY-000 00 {πόλη}>  
Τηλ: + {Αριθμός τηλεφώνου}  
<{e-mail}>

### **Latvija**

{Nosaukums}  
<{Adrese}  
{Pilsēta}, LV {Pasta indekss }>  
Tel: + {Telefona numurs}  
<{e-mail}>

### **Lietuva**

{pavadinimas}  
<{adresas}  
LT {pašto indeksas} {miestas}>  
Tel: +370 {telefono numeris}  
<{e-mail}>

### **Slovenija**

{Ime}  
<{Naslov}  
SI-0000 {Mesto}>  
Tel: + {telefonska številka}  
<{e-mail}>

### **Slovenská republika**

{Meno}  
<{Adresa}  
SK-000 00 {Mesto}>  
Tel: + {Telefónne číslo}  
<{e-mail}>

### **Suomi/Finland**

{Nimi/Namn}  
<{Osoite/Adress}  
FIN-00000 {Postitoimipaikka/Stad}>  
Puh/Tel: + {Puhelinnumero/Telefonnummer}  
<{e-mail}>

### **Sverige**

{Namn}  
<{Adress}  
S-000 00 {Stad}>  
Tel: + {Telefonnummer}  
<{e-mail}>

### **United Kingdom**

{Name}  
<{Address}  
{Town} {Postal code} – UK>  
Tel: + {Telephone number}  
<{e-mail}>

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**This leaflet was last revised in {MM/YYYY} {month YYYY}**

<This medicine has been given ‘conditional approval’. This means that there is more evidence to come about this medicine.

685 The European Medicines Agency will review new information on the medicine every year and this leaflet  
686 will be updated as necessary.>

687  
688 <This medicine has been authorised under ‘exceptional Circumstances’. This means that <because of the  
689 rarity of this disease> <for scientific reasons> <for ethical reasons> it has been impossible to get  
690 complete information on this medicine.

691 The European Medicines Agency will review any new information on the medicine every year and this  
692 leaflet will be updated as necessary.>

693  
694 **<Other sources of information>**

695  
696 Detailed information on this medicine is available on the European Medicines Agency web site:  
697 <http://www.ema.europa.eu> <There are also links to other websites about rare diseases and treatments.>

698  
699 <This leaflet is available in all EU/EEA languages on the European Medicines Agency website.>

700  
701 <----->

702  
703 <The following information is intended for medical or healthcare professionals only:>

704  
705 The complete SmPC of {(Invented) name} is provided <as a separate document> <as a tear-off section at  
706 the end of the printed leaflet> in the product package, with the objective to provide healthcare  
707 professionals with other additional scientific and practical information about the administration and use of  
708 this radiopharmaceutical.

709  
710 Please refer to the SmPC [SmPC should be included in the box].

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