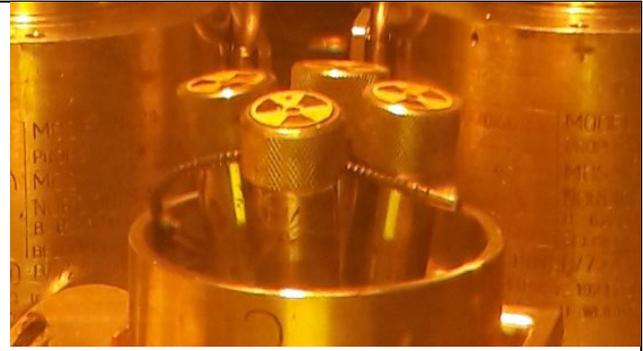


Switzerland / Belgium

	<p>Package with abnormal dose rate on flights from Kairo to Brussels, via Zurich, July 2017</p>
<p>Date and location of the event (detection)</p>	<p>Flights from Kairo to Zürich and from Zürich to Brussels on July 13th, 2017. Detection by the final consignee in Fleurus, Belgium, on July 25th, 2017</p>
<p>Mode of transport</p>	<p>Air and road</p>
<p>Type of package involved</p>	<p>Type B(U)</p>
<p>Radioactive material transported</p>	<p>29,6 GBq Ir-192 sealed source (declared), disused NDT-Source, calculated value: 16,5 GBq</p>
<p style="text-align: center;">Description of the event</p>	
<p>The package with the disused NDT-source was prepared in Egypt to be sent to Belgium. It was transported on two passenger flights from Kairo to Zurich and from Zurich to Brussels on July 13, 2017. The abnormal high dose rate level was discovered two weeks later after the shipment was delivered to the Belgian final consignee. The measured dose rates were:</p> <ul style="list-style-type: none"> - 5 cm from the source/package: 55 mSv/h; - 50 cm from the source/package: 10,1 mSv/h; - 75 cm from the source/package: 4,2 mSv/h; - 100 cm from the source/package: 2,6 mSv/h. <p>The source inside the package was not placed into an inner shielding container, but onto the shielding channels inside the packaging. The label on the package was wrong.</p> <p>The competent authorities of Belgium (FANC) and Switzerland (FOPH) calculated the potential exposure of passengers and personal on the two flights, at the airports ZRH and BRU and on the road transport between BRU airport and the final consignee in Fleurus/Belgium with the following results:</p> <ul style="list-style-type: none"> - 19 passengers on the flight between Kairo and Zurich could have received a dose between 1 mSv and 6,6 mSv. - No one from the ground staff at ZRH airport received a dose above 1 mSv. 10 persons were involved, max. estimate dose 0,22 mSv. - 7 passengers on the flight between Zurich and Brussels could have received a dose between 1 mSv and 3,1 mSv. - No one from the ground staff at BRU airport received a dose above 1 mSv, max. estimate dose below 0,2 mSv. - Drivers and operators of final consignee wore dosimeters. The maximum reading including three week's work with other sources was 0,36 mSv. The estimate is that no one received more than 0,2 mSv due to the incident. 	



Actual consequences

19 persons on the flight from Kairo to Zurich might have obtained a dose above 1 mSv (maximum 6,6 mSv), 7 persons on the flight from Zurich to Brussels might have obtained a dose above 1 mSv (maximum 3,1 mSv). The ground staff personal at Zurich airport did not receive doses above 1 mSv.

Main causes of the events

Unclear. Not enough information from Egypt about the root cause.

Summary of actions adopted

Information of passengers which were potentially concerned.
CH: Systematic dose rate measurement of incoming DG of class 7.

Main lessons learned

- Importance of international collaboration of competent authorities.
- Importance of training of the involved personal and of the responsibility for the right preparation of a package (here the Egyptian consignor), including the dose rate measurement.
- Check the possibilities to install radiation monitors or the handout personal dosimeters for certain works or limited time.
- CH: Systematic checks of dose rates in aircraft before departure (analogue transportation by road) would prevent similar cases.