



**WORKING PAPER**

**DANGEROUS GOODS PANEL (DGP)  
MEETING OF THE WORKING GROUP OF THE WHOLE**

Atlantic City, United States, 4 to 8 April 2011

**Agenda Item 2: Development of recommendations for amendments to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) for incorporation in the 2013-2014 Edition**

**Agenda Item 2.4: Part 4 — Packing Instructions**

**REVISION TO PACKING INSTRUCTION 869 FOR  
MERCURY IN MANUFACTURED ARTICLES**

(Presented by D. Brennan)

**SUMMARY**

Packing Instruction 869, which applies to mercury in manufactured articles, contains some very specific limits, none of which need be shown on the dangerous goods transport document. It is proposed that the contents of Packing Instruction 869 be reviewed and revised.

Action by the DGP-WG is in paragraph 2.

**1. INTRODUCTION**

1.1 Packing Instruction 869 describes the requirements for packing mercury in manufactured articles. This packing instruction has been in the Technical Instructions almost unchanged since the Technical Instructions were first published in 1983.

1.2 This of itself is not an issue, except that there are some very specific limits imposed in the packing instruction based on the type of article being shipped, but there is no requirement in the packing instruction, or anywhere else in the Technical Instructions, for the shipper to have to describe the type of article. For example, the packing instruction states that “electron tubes which do not contain more than 5 g of mercury each and which are packed in the manufacturer's original packagings, may be accepted up to a total net quantity of 30 g of mercury per package”, but there is no requirement for the shipper to have to state that the package contains “electron tubes with 5 g or less of mercury”.

1.3 Another part of the same packing instruction allows individual electron tubes to contain up to 450 g of mercury, yet there is no requirement for the shipper to specify what part of the packing

instruction that they comply with, or for example how many individual electron tubes are contained in the package, and therefore no way for the airline to verify conformance.

1.4 It is suggested that having ambiguous and unverifiable conditions contained in a packing instruction is inconsistent with the objective of providing clear requirements for the packaging of dangerous goods such that shippers, freight forwarders, ground handling agents, airlines and regulators can determine that quantity limits have been complied with, based on the information provided on the dangerous goods transport document.

1.5 This issue is further complicated in columns 10/11 and 12/13 of Table 3-1, where the reference is “see 869”. This means that in accordance with the requirement in Part 5;4.1.5.1 e)3), the shipper must declare the gross mass of the package as prepared for transport, not the net mass of the mercury that may be in the articles.

## 2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to consider a complete revision of Packing Instruction 869 to develop a standard set of criteria for packaging of manufactured articles which contain mercury. It is suggested that the revisions to the content of the packing instruction should be as follows:

<b>Packing Instruction 869</b>			
Passenger and cargo aircraft for UN 3506 contained in manufactured articles only			
<b>General requirements</b>			
Part 4, Chapter 1 requirements must be met, including:			
1) <b>Compatibility requirements</b>			
— Substances must be compatible with their packagings as required by 4;1.1.3.			
— Metal packagings must be corrosion resistant or be protected against corrosion.			
2) <b>Closure requirements</b>			
— Closures must meet the requirements of 4;1.1.4.			
<i>UN number and proper shipping name</i>	<i>Total quantity per package — passenger</i>	<i>Total quantity per package — cargo</i>	<b>SINGLE PACKAGINGS</b>
UN 3506 <b>Mercury</b> contained in manufactured articles	No limit	No limit	No

**ADDITIONAL PACKING REQUIREMENTS**

- Manufactured articles or apparatuses of which metallic mercury is a component part, such as manometers, pumps, thermometers, and switches, must be packed in sealed inner liners or bags of strong leakproof and puncture-resistant material impervious to mercury which will prevent the escape of mercury from the package irrespective of its position before being packed in outer packagings.

*Note.— Mercury switches and relays are excepted from the requirement for a sealed inner liner or bag providing they are of the totally enclosed leakproof type in sealed metal or plastic units.*

- Electron tubes, mercury vapour tubes (tubes with less than a total net quantity of 450 g of mercury) must be packed in strong outer packagings with all seams and joints sealed with self-adhesive, pressure-sensitive tape which will prevent the escape of mercury from the package.

*Note.— Tubes with more than 450 g of mercury must be packaged according to the requirements for manufactured articles or apparatuses.*

- Electron tubes which are completely jacketed in sealed leakproof metal cases may be shipped in the manufacturer's original packagings.

**OUTER PACKAGINGS OF COMBINATION PACKAGINGS (see 6;3.1)**

*Boxes*

*Drums*

*Jerricans*

Strong outer packagings

2.2 The existing packing instruction also contains conditions under which thermometers, switches and relays each containing not more than 15 g of mercury are excepted from the provisions of the Technical Instructions if they are installed in as an integral piece of a machine or apparatus. It is suggested that this should be incorporated into Special Provision A69, which already excepts small articles containing mercury. The proposed change to A69 is as follows:

A69

The following are not subject to these Instructions when carried as cargo:

a) Articles, each containing not more than 100 mg of mercury, gallium or inert gas and packaged so that the quantity of mercury, gallium or inert gas per package ~~does not exceed~~ is 1 g or less, ~~are not subject to these Instructions when carried as cargo.~~

b) Thermometers, switches and relays, each containing a total quantity of not more than 15 g of mercury, if they are installed as an integral part of a machine or apparatus and so fitted that shock or impact damage, leading to leakage of mercury, is unlikely to occur under normal conditions of transport.

The words "not restricted" and the special provision number A69 must be provided on the air waybill when an air waybill is issued.

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