国 际 民 用 航 空 组 织

DGP/28-WP/38
26/7/21

工 作 文 件

危险物品专家组（DGP）

第二十八次会议

2021 年 11 月 15 日至 19 日，虚拟会议

议程项目 **2**： 管理航空特有的安全风险和查明异常情况

2.2：如有必要，拟定对《危险物品安全航空运输技术细则》（**Doc 9284** 号文件）的修订提案，以便纳入 **2023** 年 － **2024** 年版

对计算 UN 3316“Q”值要求的修改

（由 P. Guo 提交）

摘要

本工作文件提议修改一般包装要求，以澄清当将不同种类的 UN 3316 — **化学物品箱**或**急救箱**装入同一个外包装时，不需要计算“Q”值，只要这些物品符合每个包装件的净数量限值。

危险物品专家组的行动：请危险物品专家组同意本工作文件附录中的修订草案。

1. INTRODUCTION

1.1 Part 4;1.1.9 e) of the Technical Instructions states that the quantities of different dangerous goods contained in one outer packaging must be such that “Q” does not exceed the value of 1, where “Q” is calculated using the formula: $Q = \frac{n_1}{M_1} + \frac{n_2}{M_2} + \frac{n_3}{M_3} + \cdots$， where n1, n2, etc. are the net quantities of the different dangerous goods and M1, M2, etc. are the maximum net quantities for these different dangerous goods according to Table 3-1 for passenger or cargo aircraft, as applicable. It also states that dangerous goods with the same UN number, packing group, and physical state (i.e. solid or liquid), and the same maximum net quantity according to column 11 or 13 of Table 3-1, do not need to be taken into account in the calculation of the “Q” providing they are the only dangerous goods in the package and the total net quantity does not exceed the maximum net quantity according to Table 3-1.

1.2 Many reagent kits are shipped as UN 3316 — **Chemical kit**. The physical states and/or packing groups applicable to one kit may differ from another, as the components in the kits are different. The following is an example involving two kinds of reagent kits referred to as Type A and Type B:

Type A includes 0.4 mL of Class 8 dangerous goods:

Reagent kits Type A



The sample is chemical kit containing 5 kinds(5 tubes)of liquid reagents. The Stop DNB Reaction Buffer(400μL×1)belongs to dangerous goods of Class 8, Packing Group III, and the other liquid reagents (Low TE Buffer 960μL×1, Make DNB Buffer 400μL×1, Make DNB Enzyme Mix I 800μL×1, Make DNB Enzyme Mix II(LC)(LC) 80μL×1)are not restricted.
Trademark and Model: MGI FCL;
REF:1000016115;
Specification: 20Rxn/Kit.
This report is attached with pictures.
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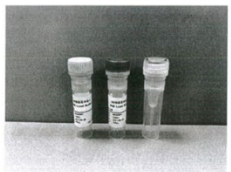
Type B includes 1.5 mL of Class 3 dangerous goods, Packing Group II

Reagent kits type B





The sample is chemical kit containing 1 reagent plate(8 kinds(10 slots) of liquid reagents) and 2 kinds(2 tubes)of liquid reagents. The DNB Loading Reagent 1(in reagent plate)(1.50mL×1)belongs to dangerous goods of Class 3, Packing Group II, and the other liquid reagents(1μM AD153 Insert Primer 1 V3.0 1.20mL×1, DNB Washing Buffer 3) 1.20 mL×1, DNB Loading Reagent 2 V3.0 1.20mL×1, Wash Reagent 1 V2.0 4.00mL×1, DNB Washing Buffer 2 4.00mL×1, DNB Washing Buffer 1 0.90mL×1, MilliQ water 4.00mL×2 and 50.0mL×1) are not restricted; The 2 kinds of liquid reagents(DNB Load Buffer I 300μL×1, DNB Load Buffer II 150μL×1, Micro Tube 0.5mL(Empty) 1 tube))are not restricted.
Trademark and Model: MGI FCL;
REF:1000016114;
Specification: 1 Kit.
This report is attached with pictures.
Flash point: <23℃.

When twelve Type A kits and twelve Type B kits are packed in the same out packaging for transport, the dangerous goods document may appear as:

NATURE AND QUANTITY OF DANGEROUS GOODS

Dangerous Goods Identification				Quantity and Type of Packing	Packing Inst.
UN or ID No.	Proper Shipping Name	Class or Division (subsidiary hazard)	Packing Group		
UN3316	CHEMICAL KIT	9	III	0.0048KG	960
UN3316	CHEMICAL KIT	9	II	0.018KG	960
				ALL PACKED IN ONE FIBREBOARD BOX	

Q=0.1

Note.— $Q = \frac{n_1}{M_1} + \frac{n_2}{M_2} = \frac{0.0048}{10} + \frac{0.018}{10} = 0.00228 = 0.1$

1.2.1 Consider that:

a) according to Part 5;4.1.5.1 b), for chemical kits and first aid kits, where the kits contain solids and/or liquids, the net mass of liquids within the kits is to be calculated on a 1 to 1 basis of their volume, i.e. 1 litre equal to 1 kilogram.

b) according to Table 3-1, the two kinds of reagent kits have the same maximum net quantity per package, even though their packing groups are different .Which means the "M" is always the same. When the sum "n" does not exceed "M", the "Q" value always less than or equal to "1":

Chemical kit	3316	9		Miscellaneous		A44 A163		E0	960 Y960	10 kg 1 kg	960	10 kg

First aid kit	3316	9		Miscellaneous		A44 A163		E0	960 Y960	10 kg 1 kg	960	10 kg

1.3 It is therefore proposed to clarify that it is not necessary to calculate the "Q" value when different types of UN 3316 — **Chemical kits** or **First aid kits** are packed in the same outer packaging and meet the per package net quantity limits, even if the physical states or packing groups are different.

2. ACTION BY THE DGP

2.1 The DGP is invited to agree to the draft amendments shown in the appendix to this working paper.

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附录

对《技术细则》第 4 部分的拟议修订

第 4 部分

包装说明

……

第11章

第9类 — 杂项危险物品

……

第1章

一般包装要求

……

1.1.9 符合1.1.8的外包装，如符合如下要求，可以装入一种以上的危险物品：

……

e) 一个外包装所装入的不同危险物品数量的条件必须是“Q”值不大于1，“Q”值按如下公式计算：

$$Q = \frac{n_1}{M_1} + \frac{n_2}{M_2} + \frac{n_3}{M_3} + \cdots$$

式中n_1、n_2等是不同危险物品的净数量，M_1、M_2等是按照表3-1中对客机或货机规定的不同危险物品的最大净数量。然而，下列危险物品不需要计算“Q”值：

1) 固态二氧化碳（干冰），UN 1845；

2) 在表3-1中第11栏和第13栏中标明“No limit”（无限制）的物品；

3) 具有相同的UN编号、包装等级和物理状态（即固态或液态）以及按照表3-1第11或第13栏最大净量也相同的危险物品，且它们是这个包装件中仅有的危险物品，其净数量的总和不超过表3-1中最大净数量。

4) UN 3316 — **化学物品箱**或**急救箱**，且包装件中危险物品的净数量的总和不超过表3-1中最大净数量。

装有6.2项物质（感染性物质）的外包装可以含有用于冷藏和冷冻的材料或包装材料，例如吸附材料。

注：含有放射性物质的包装件，见9.1.3。

— 完 —