



U.S. Department  
of Transportation  
**Pipeline and Hazardous  
Materials Safety  
Administration**

1200 New Jersey Avenue, SE  
Washington, DC 20590

July 21, 2022

Bin Fan  
Senior Engineer  
Shanghai Research Institute of Chemical Industry Testing Company, Ltd.  
No. 2779 Guangfu West Road, Putuo District  
Shanghai, China

Reference No. 22-0032

Dear Ms. Fan:

This letter is in response to your April 10, 2022, email requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to the classification and description of an e-cigarette that contains a lithium ion battery. You provided four photographs illustrating the e-cigarette and other equipment and ask questions on how to properly classify and describe the product for purposes of packaging, hazard communication, and transportation.

We have paraphrased and answered your questions as follows:

- Q1. You ask whether the e-cigarette packaged together with a charger should be described as “Lithium ion batteries packed with equipment”—which is subject to packing instruction (PI) 966 in accordance with the International Civil Aviation Organization Technical Instructions (ICAO TI) on the Transport of Dangerous Goods by Air—or should the e-cigarette packaged together with a charger be described as “Lithium ion batteries” subject to PI 965 in accordance with the ICAO TI.
- A1. Please note, in accordance with § 173.22, it is the shipper’s responsibility to properly classify and describe a hazardous material, as this Office does not perform that function. Furthermore, in accordance with § 173.185 of the HMR, the term “equipment” is defined as the device or apparatus for which the lithium cells or batteries provide electrical power for its operation. For example, a charger (i.e., a spare battery) may provide power to an e-cigarette (i.e., equipment).
- Q2. Since the e-cigarette and charger can be shipped separately and because the charger and e-cigarette both contain a lithium ion battery, you ask how to describe each component when they are transported in separate packages.

- A2. Ultimately, it is the shipper's responsibility to properly classify and describe a hazardous material, but it is the opinion of this office that an e-cigarette packaged and shipped without the charger should be described as "UN3481, Lithium ion batteries contained in equipment *including lithium ion polymer batteries*, 9" and shipped accordingly. If the charger is packaged and shipped without the e-cigarette, it should be described as "UN3480, Lithium ion batteries *including lithium ion polymer batteries*, 9" and shipped accordingly.
- Q3. You ask if the material contains a heating rod, a battery management unit (BMU), and a lithium ion battery—with no atomizer—can you describe the material as equipment or a charger. In addition, you ask if the atomizer was integrated in the e-cigarette, could you consider the e-cigarette as "equipment" since the lithium ion battery from the e-cigarette provides electricity to the atomizer.
- A3. If the device contains no atomizer, it would be considered "UN3480, Lithium ion batteries *including lithium ion polymer batteries*, 9" for shipping purposes. If the device contains an atomizer, it would be described as "UN3481, Lithium ion batteries contained in equipment *including lithium ion polymer batteries*, 9."
- Q4. You ask if the e-cigarette contains both a flammable liquid component and a lithium ion battery, what is the appropriate description and classification for purposes of shipping.
- A4. It is the shipper's responsibility to properly classify and describe a hazardous material; yet, it is the opinion of this Office that an e-cigarette powered by a lithium ion battery and containing a flammable liquid component may potentially be classified and described as "UN3540, Articles containing flammable liquid, n.o.s., 3." Because the classification and description of a hazardous material are dependent on the type and quantity of material; absent more specific information, it is difficult to specify the most appropriate classification and description for equipment having both a flammable liquid component and a miscellaneous hazard component (e.g., a lithium ion battery).

I hope this information is helpful. Please contact us if we can be of further assistance.

Sincerely,



Dirk Der Kinderen  
Chief, Standards Development Branch  
Standards and Rulemaking Division

**From:** [Foster, Glenn \(PHMSA\)](#)  
**To:** [Dodd, Alice \(PHMSA\)](#); [Hillman, Kenetha CTR \(PHMSA\)](#)  
**Subject:** FW: Problems on Classification of E-cigarette  
**Date:** Wednesday, April 20, 2022 12:26:41 PM  
**Attachments:** [E-cigarette-0420.docx](#)

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Alice and Kenetha,

Can you of you process this as a request for a LOI and assign, please?

Thanks,  
Glenn

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**From:** Leary, Kevin (PHMSA) <Kevin.Leary@dot.gov>  
**Sent:** Wednesday, April 20, 2022 11:54 AM  
**To:** Kelley, Shane (PHMSA) <shane.kelley@dot.gov>; DerKinderen, Dirk (PHMSA) <Dirk.DerKinderen@dot.gov>; Foster, Glenn (PHMSA) <Glenn.Foster@dot.gov>  
**Cc:** Nickels, Matthew (PHMSA) <Matthew.Nickels@dot.gov>; Pfund, Duane (PHMSA) <Duane.Pfund@dot.gov>  
**Subject:** FW: Problems on Classification of E-cigarette

Hi Shane, I recommend processing this as an interp request. I know PHMSA has issued some letters about lithium battery powered devices and charging cases e.g. ear buds but the other questions posed in the attached look like they go beyond what we have already written. Considering the scenario specific nature of the letter and the modal (air) references I think it best to develop a coordinated response.

Kevin

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**From:** 范宾 <[fb@ghs.cn](mailto:fb@ghs.cn)>  
**Sent:** Wednesday, April 20, 2022 6:56 AM  
**To:** Kelley, Shane (PHMSA) <[shane.kelley@dot.gov](mailto:shane.kelley@dot.gov)>; Leary, Kevin (PHMSA) <[Kevin.Leary@dot.gov](mailto:Kevin.Leary@dot.gov)>  
**Subject:** Problems on Classification of E-cigarette

**CAUTION:** This email originated from outside of the Department of Transportation (DOT). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Dear Shane and

We are from Shanghai Research Institute of Chemical Industry Testing Co., Ltd, and met you at TDG meeting in Geneva or on line. I hope this email finds you well.

We are now experiencing a lockdown in Shanghai because of the pandemic COVID-19, but, fortunately, it seems that things are getting better recently.

I am writing to ask your opinions on the classification of some e-cigarette products, as you can find in the attached document.

Recently, there is an increasing amount of e-cigarettes transported to and from Mainland China, including those new ones listed in the document, which we cannot come to an agreement on how they should be classified. We have heard from the industry that about 60% of e-cigarettes produced in China will be exported to the United States, so we would like to know how US experts classify such products. It would be highly appreciated if you could help.

Many thanks in advance.

Regards,

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**范宾** Fanbin

教授级高工 Senior Engineer

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Issue 1:

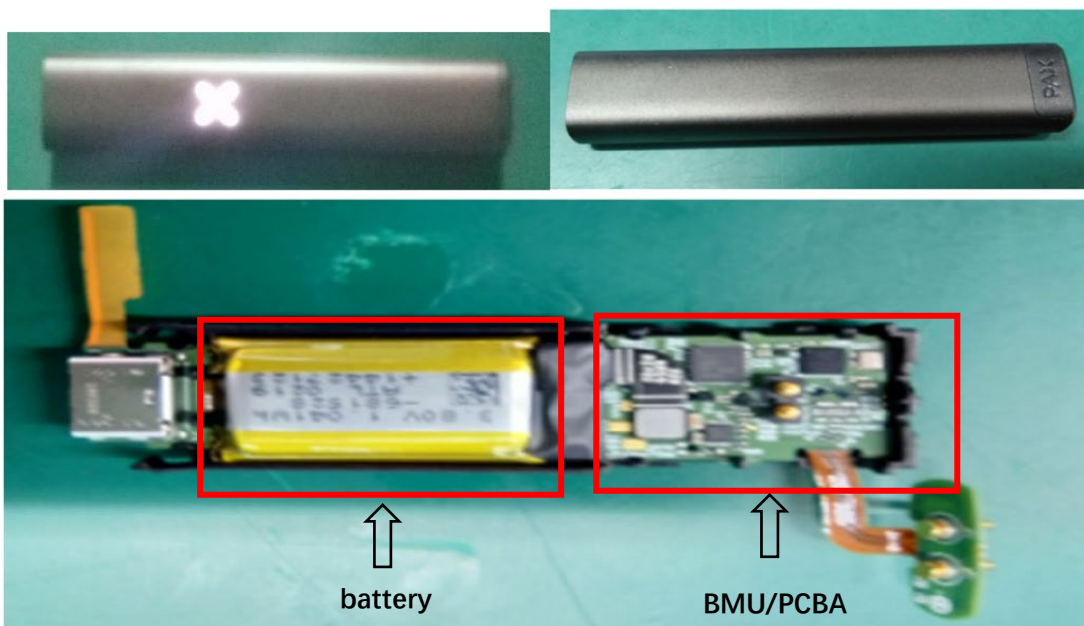
Electronic cigarette set (picture as below)

The set contains the cigarette itself and a charger which can charge the E-cigarette. It is quite similar to the Bluetooth earbuds. The charger can also store power in the lithium battery inside it and provide the power to the cigarette. For the Bluetooth earbuds, it is informed that earbuds set can be classified as PI966. Then how about this kind of set? Can the charger which shipped together with the cigarette in the set also be classified as PI966? Or we must define it as a power bank and classify it as PI965.



Issue 2:

Sectional part of the E-cigarette may also be shipped separately. We met different and complex situation. As picture below shows, it is a heating rod with BMU (Battery Management Unit) and lithium battery. There is no atomizer in it. How can we define it in this way? Equipment or simply charger?



If the atomizer is integrated with it, can we classify it as an equipment since the battery provides the electricity to the atomizer and makes it work?



1: atomizer      2: BMU/PCBA      3: battery

### Issue 3

As we know, the main contents of the cartridge are glycerol and propylene glycol, which are not flammable. But there are exceptions. If the oil in the cartridge of E-cigarette contains flammable liquids and be shipped with the lithium battery in one article, which UN No. will be more suitable? We understand for the cartridge (containing flammable liquids) alone it shall be UN3363 and for the lithium battery alone it shall be UN3480 or UN3481. If these two kinds of miscellaneous dangerous goods were put together in an article, how can we classify it? Shall we assign it UN3548? Then the goods will be forbidden in air transport.