# DANGEROUS GOODS PANEL (DGP)

## THIRTIETH MEETING

**Montréal, 6 to 10 October 2025**

**Agenda Item 6: Dangerous goods provisions to support RPAS operations *(Ref: Job Card DGP.007.02)***

## TRANSPORT OF DANGEROUS GOODS IN THE SPECIFIC UNMANNED AIRCRAFT SYSTEM CATEGORY

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**SUMMARY**

The transport of dangerous goods by air in unmanned aircraft systems of the specific category poses significant challenges and opportunities. This information paper seeks to address the growing need for harmonisation of requirements for the transport of dangerous goods beyond those applicable to the certified category of remotely piloted aircraft systems.

## 1. INTRODUCTION

1.1 Most Civil Aviation Authorities (CAAs) have embraced the OPEN-SPECIFIC-CERTIFIED categorization of Unmanned Aircraft Systems (UAS) or Remotely Piloted Aircraft Systems (RPAS) operations, as proposed by the Joint Authorities for Rulemaking on Unmanned Systems (JARUS). This framework has become the most widely adopted among JARUS recommendations, offering a scalable approach to regulating UAS/RPAS activities based on operational risk.

1.2 The OPEN category is designed for low-risk operations and explicitly excludes transportation of dangerous goods items from its scope. In contrast, the CERTIFIED category encompasses transportation in a manner comparable to manned aviation, requiring rigorous safety and reliability standards. Finally, in between, the SPECIFIC category allows a wide range of operations with some limitations, by relying on a risk assessment methodology.

1.3 The Specific Operations Risk Assessment (SORA) methodology suggested by JARUS, another widely adopted framework by many CAAs, supports this risk evaluation for SPECIFIC operations. However, the transport of dangerous goods on board the UAS (e.g. explosives, hazardous chemicals, hazardous medical samples) are excluded from the scope of this methodology and might require additional safety considerations (e.g., demonstration of the ability to contain a dangerous good).

Therefore, JARUS recommends that a separate approval for the carriage of dangerous goods is required to be made by the applicant to the competent authority as part of an overall application for an operational approval.

1.4 The exclusion of the transport of dangerous goods subject from the recommended SORA methodology leads/has led to a lack of harmonisation in the provision of operational approval given by competent authorities.

1.5 In Europe, the European Union Aviation Safety Agency (EASA) imposed that (1) Dangerous goods may be transported in the SPECIFIC category of UAS operations only if the UAS operator is able to demonstrate that these goods will not cause harm or damage to third parties or to the environment in case of accident; (2) The assessment of the operational risk of transporting dangerous goods should take into account several defined parameters such as the quantity, class, container, …; (3) The UAS operator that wishes to carry out operations in the 'specific' category to transport dangerous goods should establish a dangerous goods training programmes for the personnel involved, as required by the Technical Instructions.

1.6 The SPECIFIC category plays a vital role in enabling the safe and economically viable deployment of UAS/RPAS operations across a range of commercial applications. While it is often positioned as a transitional step toward the CERTIFIED category, it already provides a regulatory framework for use cases such as the transport of blood samples, petrochemical materials, and pharmaceutical products. These operations mainly involve small quantities of products which can be handled safely within the SPECIFIC category, and requiring them to meet CERTIFIED-level standards would impose disproportionate regulatory and financial burdens, effectively undermining their feasibility. For this reason, the SPECIFIC category is not only a stepping stone but a critical enabler of innovation and market development in the unmanned aviation sector.

1.7 To support the growth of these emerging markets, it is essential that the SPECIFIC category is harmonised across jurisdictions. Although the OPEN-SPECIFIC-CERTIFIED framework has been widely adopted by Civil Aviation Authorities, the regulatory treatment of dangerous goods transport by UAS/RPAS remains inconsistent. There is a clear need for guidance on how UAS-specific deviations from ICAO Technical Instructions (TI) and IATA Dangerous Goods Regulations (DGR) should be interpreted and applied in practice.

1.8 Several areas require focused attention to ensure safe, harmonised, and scalable operations:

1.8.1.1 In many UAS/RPAS single-package operations, the shipper is also loading the aircraft, creating an overlap of shipper and operator responsibilities. In general, UAS/RPAS operations involve a much more diverse and flexible flow of activities. This diversity arises from the wide range of operational models, varying payload types, and the often decentralized nature of drone logistics. For example, the same individual or team may handle packaging, labelling, providing shipment information, and physically loading the UAS, blurring traditional boundaries. Such operational fluidity requires regulatory frameworks to acknowledge and accommodate these overlapping responsibilities while maintaining clear accountability. This complexity contrasts sharply with manned aviation's standardized workflows, making it essential for authorities to provide tailored guidance that reflects the unique characteristics of UAS/RPAS operations.

1.8.1.2 The high digitalisation level of unmanned operations should be seen as a learning opportunity. Digital technologies offer substantial opportunities to support the execution of shipper and operator responsibilities. Digital tools can streamline regulatory compliance, improve traceability, and

enable automated validation of systems and processes. Regulatory authorities should consider encouraging the adoption and validation of such technologies to increase efficiency, transparency, and safety in UAS/RPAS operations involving dangerous goods.

1.8.1.3 Competent personnel are foundational to safe UAS/RPAS operations. Training requirements must be clearly defined and harmonised, ensuring all staff involved, including shippers and operational personnel, possess the necessary skills and knowledge. Regulatory guidance should specify competency levels and provide frameworks for certification or accreditation, supporting consistent and high-quality training across jurisdictions.

1.8.1.4 Technical innovations, such as parachute rescue systems and crash-protected containers, play a vital role in mitigating risks associated with UAS/RPAS operations. To foster innovation and ensure safety, these solutions should receive harmonised recognition by regulatory authorities. Developing common standards and acceptance criteria will encourage widespread adoption of effective safety technologies and contribute to protecting third parties and the environment.

## 2. CONCLUSION

2.1 The DGP is invited to note the information provided in this paper, in particular the growing need for harmonisation of requirements for the transport of dangerous goods beyond those applicable to the certified category of UAS/RPAS.

2.2 The DGP is invited to support to receive an in-depth presentation at the next DGP/WG on the specific UAS/RPAS category and the associated challenges with respect to the transport requirements in the Technical Instructions.

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