February 24, 2022



Pipeline and Hazardous Materials Safety Administration 1200 New Jersey Avenue, SE Washington, DC 20590

DOT-SP 21327

EXPIRATION DATE: 2022-06-30

(FOR RENEWAL, SEE 49 CFR 107.109)

1. <u>GRANTEE</u>: Bolloré Logistics Germany GmbH Munich, Germany

> US AGENT: ShipMate, Inc. Sisters, OR

2. <u>PURPOSE AND LIMITATIONS</u>:

a. This emergency special permit authorizes the transportation in commerce aboard cargo-only aircraft specially designed transport containers (STC) in which prototype and low production lithium ion battery modules contained in equipment (spacecraft) that have not completed all U.N. tests and exceed 35 kg in alternate packaging, articles containing toxic gas, n.o.s. (contains ammonia, anhydrous) within the equipment, and articles containing a substance liable to spontaneous combustion, n.o.s. as part of a filter system and cylinders containing compressed nitrogen inside the STC. This special permit provides no relief from the Hazardous Materials Regulations (HMR) or the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO TI) other than as specifically stated herein. The most recent revision supersedes all previous revisions.

b. The safety analyses performed in development of this special permit only considered the hazard and risks associated with transportation in commerce.

c. No party status will be granted to this special permit.

d. This special permit serves as an "exemption" as defined in 1;3.1.1 of the ICAO TI for the transportation of UN3539, Articles containing toxic gas, n.o.s. (contains ammonia, anhydrous) and UN3542, Articles containing a substance liable to spontaneous

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combustion, n.o.s. (contains nickel mixture), aboard cargo aircraft, as an approval under Special Provision A88 and State Variation US 3 of the ICAO TI, and as a "Competent Authority Approval" as defined under 49 CFR § 107.1

- 3. <u>REGULATORY SYSTEM AFFECTED</u>: 49 CFR Parts 106, 107 and 171-180 and the ICAO TI.
- 4. <u>REGULATIONS FROM WHICH EXEMPTED</u>: 49 CFR § 172.101 Hazardous Materials Table Column (9B) in that lithium batteries may have a mass exceeding 35 kg per package; § 173.185(a)(1) in that lithium battery modules need not have passed the criteria in Part III, subsection 38.3 of the UN Manual of Tests and Criteria; § 173.185(b) in that alternative packaging is authorized; §§ 172.300 and 172.400 and Part 5 Chapters 2 and 3 of the ICAO TI in that marking and labeling of the cylinders contained within the package is not required; § 173.301(f) in that the pressure vessels (cylinders) within the equipment need not be fitted with a pressure relief device; § 172.101 Hazardous Materials Table Column (9B) and Columns 12 and 13 of the ICAO TI Dangerous Goods List in that UN3539, Articles containing toxic gas, n.o.s.(contains Ammonia, anhydrous) and UN3542, Articles containing a substance liable to spontaneous combustion, n.o.s. (contains nickel mixture) may be transported aboard cargo aircraft; and § 173.304a(a)(2) (heat pipe for anhydrous ammonia) in that non-DOT specification packaging is authorized, as specified herein.
- 5. <u>BASIS</u>: This emergency special permit is based on the application of Bolloré Logistics Germany GmbH dated January 19, 2022, submitted in accordance with § 107.117 and the determination it is necessary to prevent significant economic loss and supplemental information dated February 12, 2022 and February 14, 2022.

Hazardous Materials Description				
Proper Shipping Name	Hazard Class/ Division	Identi- fication Number	Packing Group	
Nitrogen, compressed	2.2	UN1066	N/A	
Lithium ion batteries contained in equipment including lithium ion polymer batteries	9	UN3481	N/A	
Articles containing toxic gas, n.o.s. (contains Ammonia, anhydrous)	2.3	UN3539	N/A	

6. <u>HAZARDOUS MATERIALS (49 CFR 172.101)</u>:

Hazardous Materials Description				
Proper Shipping Name	Hazard Class/ Division	Identi- fication Number	Packing Group	
Articles containing a substance liable to spontaneous combustion, n.o.s. (contains nickel mixture)	4.2	UN3542	N/A	

7. <u>SAFETY CONTROL MEASURES</u>:

a. <u>PACKAGING</u>: Prescribed outer packagings are sealed, specially designed transport containers (STC), which are packaged as follows:

(1) Two battery modules and the heat pipe, which is an integral part of an air conditioning system, must be contained in the equipment (spacecraft), must have been designed for space application, and must be constructed of suitable material of adequate strength and design.

(2) The heat pipe containing the refrigerant (Articles containing toxic gas, n.o.s. (contains Ammonia, anhydrous)) must be constructed of axially grooved tubing (aluminum alloy 6063 or 300 series stainless steel or combination thereof) with an end cap and fill tube brazed to opposing ends.

(3) The "Articles containing a substance liable to spontaneous combustion, n.o.s." (contains nickel mixture) must be incorporated as an encapsulated catalyst within the filters through which nitrogen gas passes and which is an internal component of the STC.

(4) Three (3) nitrogen cylinders, one (1) UN ISO 9809-1 and two (2) UN ISO 9809-2, must be in accordance with the Packing Instruction 200 of the ICAO TI with no pressure relief devices. Each cylinder has a service pressure of 200 bar with a test pressure of 300 bar and minimum thicknesses of 4.85 mm and 4.1 mm and must conform to all requirements in UN ISO-9809-1 and UN ISO 9809-2, respectively.

(5) The equipment containing the battery modules, the refrigeration system, the filter system containing the nickel mixture, and the three nitrogen cylinders must be securely placed in a rigid and sealed, specially designed outer transport container (identified as STC EnMAP) as described in the February 12, 2022 supplemental submission and on file with the Office of Hazardous Materials Safety (OHMS).

(6) The nitrogen cylinders must be directly and securely connected to the inside of the STC to create a clean-room condition.

(7) The net weight of the battery modules (2 modules) within each package must not exceed 43 kg (95 pounds).

b. <u>TESTING REQUIREMENTS</u>:

(1) Lithium ion battery module:

(i) Each cell within the battery module must be of a type tested in accordance with the UN Manual of Tests and Criteria, 5th Revised Edition.

(ii) The battery module need not be of a type tested in accordance with the UN Manual of Tests and Criteria but must have completed the vibration test as described in the supplemental information dated February 14, 2022 on file with the OHMS (EN-ABS-MA-001, dated 8/20/2020)..

(2) Heat pipes:

(i) After filling the heat pipes, the filling port must be crimped and be brazed with appropriate material.

(ii) The filled heat pipes must be maintained at a temperature of above 125 $^{\circ}$ C and test pressure of 150 bar (2,176 psig) for 20 minutes.

c. <u>OPERATIONAL CONTROLS</u>:

(1) Only prototype and low production lithium ion batteries contained in equipment as described in the application of Bolloré Logistics Germany GmbH dated January 19, 2022 and on file with the OHMS may be offered for transportation under the terms of this special permit. ("Low production" is defined as a production run of no more than 100 cells or batteries annually of a particular type.)

(2) The watt-hour rating of each battery module (ABSL Module) contained in equipment comprised of 352 cells (Model: US18650H2) may not exceed nominal energy of 1.9 kWh.

(3) The battery modules must be equipped with an effective means of preventing dangerous reverse current flow for the modules that contain cells connected in parallel.

(4) Cells and battery modules must be protected against short circuiting.

(5) The heat pipe may not contain more anhydrous ammonia than the quantity described in the application and may not exceed 50 bar (725 psig) in the working pressure at room temperature ($20 \,^{\circ}$ C).

(6) The net weight of the nickel mixture (UN3542) in the filters may not exceed the quantity described in the application.

(7) The three cylinders each containing not more than 50 kg compressed nitrogen may discharge nitrogen gas at a volumetric flow of not more than 1.6 L/min within the STC by reducing the pressure to not more than 200 millibar (2.9 psi) by a pressure reducing device, which induces a slightly positive pressure within the STC.

(8) Transportation of the spacecraft contained in the STC is authorized for the one-way movement aboard cargo-only aircraft from Munich, Germany to the USA.

(9) Emergency response information provided with the shipment and available via an emergency response telephone number must indicate that certain packagings within the STC are not fitted with pressure relief devices and provide appropriate guidance in case of fire exposure.

(10) Only two battery modules with a total aggregate energy of 3.8 kWh, one heat pipe containing anhydrous ammonia and the nickel mixture in the filters, and three nitrogen cylinders (not contained in equipment) may be packed within an STC.

d. <u>MARKING</u>: The outer transport container (STC) must be plainly and durably marked on two opposite sides in letters at least 2 inches in height on a contrasting background, "DOT-SP 21327" as specified in § 172.301(c) and "DO NOT STACK".

8. <u>SPECIAL PROVISIONS</u>:

a. Under the terms of this special permit, the grantee may only offer hazardous materials (i.e., the grantee is not authorized as a carrier).

b. A person who is not a holder of this special permit, but receives a package covered by this special permit, may reoffer it for transportation provided no modification or change is made to the packaging and it is offered for transportation in conformance with this special permit, the HMR, and the ICAO TI.

c. A current copy of this special permit must be maintained at each facility where the package is offered or reoffered for transportation.

d. This special permit in no way affects the need to obtain any required authorizations from other agencies of the United States Government or from the competent authorities of the States of origin, transit, over flight, and destination of the consignment, as well as the State of the air operator.

- 9. <u>MODES OF TRANSPORTATION AUTHORIZED</u>: Motor vehicle and cargo-only aircraft.
- 10. <u>MODAL REQUIREMENTS</u>: A current copy of this special permit must be carried aboard each aircraft or motor vehicle used to transport packages covered by this special permit. The shipper must furnish a copy of this special permit to the air carrier before or at the time the shipment is tendered.
- 11. <u>COMPLIANCE</u>: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 <u>et seq</u>:
 - o All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
 - o Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
 - o Registration required by § 107.601 <u>et seq</u>., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when this special permit has expired or is otherwise no longer in effect.

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) — "The Hazardous Materials Safety and Security Reauthorization Act of 2005" (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term "exemption" to "special permit" and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals. Continuation of DOT-SP 21327

12. <u>REPORTING REQUIREMENTS</u>: Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 - Immediate notice of certain hazardous materials incidents, and 171.16 - Detailed hazardous materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:

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for William Schoonover Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, East Building PHH-13, 1200 New Jersey Avenue, Southeast, Washington, D.C. 20590.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at <u>https://www.phmsa.dot.gov/approvals-and-permits/hazmat/special-permits-search</u>. Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: Steve H