

SGS EWACS, Industries and Environment

# AIR TRANSPORT Dangerous Goods Regulations

SGS Emergency, Waste and Chemical Services

When you need  
**to be sure**

Sarah Sanders | Global Technical Manager | 6 December 2024

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## IATA DGR – 66<sup>th</sup> edition

- Effective January 1<sup>st</sup> 2025 – 31<sup>st</sup> December 2025
- All amendments made by ICAO DG Panel (TI 2025-2026) and changes adopted by IATA Dangerous Goods Board

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## Regulations Transport of Dangerous Goods

UN Committee of Experts

IAEA

Regulations for Safe Transport of RadMat  
IAEA-SSR-6

Recommendations on the Transport of Dangerous Goods – Modal Regulations (23rd revised edition)

as basis for development of the Regulations

ADR

RID

ADN

IMO

ICAO + IATA



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## Reference Marks

□ NEW

△ CHANGE

⊗ CANCELLATION

 Additional IATA requirements

Reference marks missing?  
(state and operator variations)



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## DGR 1.2.7 Exceptions

- DGR is not applicable for transport of DG if
  - Medical/veterinary aid during flight
  - Dropping during flight (agri-, horticultural) or avalanche control
  - S&R operations to provide aid
  - Vehicles carried in aircraft designed or modified for ferry operations
  - DG as propulsion or operation equipment during transport
  - Excess baggage
  - ☐ (i) data loggers

lithium battery  $\leq 20\text{Wh}$  or 1g



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### 1.2.7.i) Data Loggers / cargo tracking devices with installed lithium batteries

Not subject to any provisions provided

- In use or intended for use during transport
  - Cell or battery compliant to 38.3 test & criteria and quality management program
  - Meet conditions A213, if applicable
  - If applicable, meet requirements for lithium batteries not externally chargeable
  - Make available test summary reports
  - ☐ 3.9.2.6.1 note: meaning of "make available"
- lithium ion cell or battery  $\leq 20\text{Wh}$
- Lithium metal cell or battery  $\leq \text{g}$
- no more than needed to track or collect data
- Capable withstanding shocks and loadings (normal transport conditions)
- Meet defined standard electromagnetic radiation



lithium battery  $\leq 20\text{Wh}$  or 1g

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## LIMITATIONS

- **DG carried by passenger or Crew**
- T2.3A
- DG is **forbidden** for carriage by **passenger** or crew **except** as mentioned in **table!**
- Portable Electronic Devices
- Mobility aids



100 % Passenger Liability!

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## CLASSIFICATION

- **General principles**
- ☐ 3.0.1.5
- If shipper makes classification, information must be made available to the competent authority (if requested)
- 3 months

Examples of information:

- Known composition of substance
- Known physical characteristics of articles
- Results of classification testing
- SDS in accordance with GHS of Classification and Labeling of Chemicals



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## CLASSIFICATION



### 3.1.1.2

Definitions aligned with definitions and classification in the UN Model Regulations. (previous App A ☒ )



### 3.4.1.1.1.3

Term metal powders aligned with the UN classification



### 3.4.1.1.3.3

Solids which may cause fire through friction



### 3.6.2.2.2.1

Indicative list category A  
Mpox – monkey pox virus (cultures only)



### 3.9.2.5.5

Exception for covid-19 vaccines now applies to all pharma products, such as vaccines, if packed in form ready to use, incl. clinical trials



### 3.9.2.7

classification criteria for sodium ion batteries

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Hazard Label(s)	PG	Passenger and Cargo Aircraft					Cargo Aircraft Only		S. 4
		EQ see 2.6	Ltd Qty		Pkg Inst	Max Net Qty/Pkg	Pkg Inst	Max Net Qty/Pkg	
			Pkg Inst	Max Net Qty/Pkg					
D	E	F	G	H	I	J	K	L	
Oxidizer & Toxic	III	E1	Y546	10 kg	559	25 kg	563	100 kg	A
Toxic	II	E4	Y644	1 kg	669	25 kg	676	100 kg	
Oxidizer	III	E1	Y546	10 kg	559	25 kg	563	100 kg	A
Oxidizer	II	E2	Y544	2.5 kg	558	5 kg	562	25 kg	
Oxidizer	II	E2	Y544	2.5 kg	558	5 kg	562	25 kg	
Oxidizer	I	E0	Forbidden		Forbidden		561	15 kg	
Oxidizer	II	E2	Y544	2.5 kg	558	5 kg	562	25 kg	
Oxidizer	III	E1	Y546	10 kg	559	25 kg	563	100 kg	A
g. when wet & Toxic	I	E0	Forbidden		Forbidden		487	15 kg	
			Forbidden		Forbidden		Forbidden		

## 4.2 LIST OF DANGEROUS GOODS

### ■ New entries

- UN0514 fire suppressant dispersing devices, Division 1,4S
- UN3559 Fire suppressant dispersing devices, Class 9
- UN3555 trifluoromethyltetrazole sodium salt in acetone (3, II liquid desensitized explosive §3.3.1.6)
- UN3554 Gallium contained in manufactured articles

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## UN0514 – UN3559

## PI 961

- Fire suppressant dispersing devices
- Classified 1.4S or class 9



- Existing PI for UN3268 , safety devices (electrically initiated, class 9)
- Added NEW entry UN3559  
Fire suppressant dispersing devices

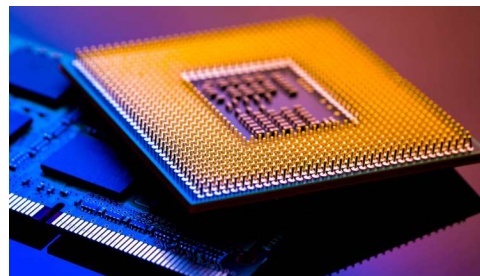
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## UN3554 - gallium contained in manufactured articles

- New entry
- Gallium (8) comparable to mercury 8(6,1)
- Non-toxic liquid metal



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Hazard Label(s)	PG	EQ see 2.6	Passenger and Cargo Aircraft				Cargo Aircraft Only		Special Provisions
			Ltd Qty		Pkg Inst	Max Net Qty/Pkg	Pkg Inst	Max Net Qty/Pkg	
			Pkg Inst	Max Net Qty/Pkg					
D	E	F	G	H	I	J	K	L	M
Oxidizer & Toxic	III	E1	Y546	10 kg	559	25 kg	563	100 kg	A6
Toxic	II	E4	Y644	1 kg	669	25 kg	676	100 kg	
Oxidizer	III	E1	Y546	10 kg	559	25 kg	563	100 kg	A6
Oxidizer	II	E2	Y544	2.5 kg	558	5 kg	562	25 kg	
Oxidizer	II	E2	Y544	2.5 kg	558	5 kg	562	25 kg	
Oxidizer	I	E0	Forbidden		Forbidden		561	15 kg	A
Oxidizer	II	E2	Y544	2.5 kg	558	5 kg	562	25 kg	
Oxidizer	III	E1	Y546	10 kg	559	25 kg	563	100 kg	A6
Explosive, when wet & Toxic	I	E0	Forbidden		Forbidden		487	15 kg	
			Forbidden		Forbidden		Forbidden		

## 4.2 LIST OF DANGEROUS GOODS

### ■ New entries

- UN3551 Sodium ion batteries
- UN3552 Sodium ion batteries contained in equipment
- UN3552 Sodium ion batteries packed with equipment
- UN3556 vehicle lithium-ion battery powered
- UN3557 vehicle, lithium metal battery powered
- UN3558 vehicle sodium ion battery powered

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## 4.4. Special Provisions

### Amendments to special provisions

- A40 desensitised explosives class 3 and 4,1
- A69 gallium
- A88,A99,A146 and A154 sodium ion batteries
- A107 UN3082 – UN3077 5L/5kg
- A144 protective breathing equipment, chemical oxygen generator
- A185 and A214 sodium ion batteries in vehicles
- A190 radiation detectors

### 4.4—Special Provisions

The amendments to special provisions include:

- A40—to expand the application of liquid
- A69—to include reference to gallium;
- A88, A99, A146 and A154—to apply to
- A107—to permit apparatus, articles or 5 kg of environmentally hazardous substance
- A144—to make clear that the appropriate special provision is being exercised;
- A185 and A214—to incorporate reference to lithium ion batteries, lithium metal batteries
- A190—to clarify that Special Provisions apply in accordance with A190.

New special provisions include:

- A226—permitting the continuation of the
- A228—clarifies the classification difference between electrolyte and those batteries with
- A230—excludes nitrocellulose membranes from the dangerous goods regulations

Amendments to special provisions

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## 4.4. Special Provisions

### NEW special provisions

- A226 – detonators, electronic (class 1)
- A228 - sodium ion cells, organic electrolyte
- A230 – nitrocellulose membrane filters
- A231 – vehicles with sodium ion batteries
- A232 - fire suppressant dispersing devices
- A233 – tetramethylammonium (TMAH) hydroxide aqueous solution

#### 4.4—Special Provisions

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NEW special provisions

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## 5.0 PACKING

### 5.0.2.11

- “All packed in one”
- Clarification on Q value
- Quantities relevant packing instructions to be consistent with aircraft type
- All PAC or all CAO PI



$$Q = \frac{n1}{M1} + \frac{n2}{M2} + \frac{n3}{M3} \dots$$

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## Packing Instructions — Class 3 — Flammable Liquids

### INSTRUCTION Y305

NS BEG-03 SAG-01 USG-04

PACKAGING: AA-01 AM-03 AS-02 BIV-01 CI-01 CO-06 CS-06 DQ-02 DF-01 FX-02  
 GR-06 KE-07 KD-06 LC-02 LG-04 LH-01 LX-02 LY-04 NH-14 NX-03 OJ-04 QY-02  
 R2-02 UO-08 UX-02 XK-03 XN-05

Applies to Limited Quantities of flammable liquids in Packing Group II and UN3248.

Packing Requirements of Subsection 5.0.2 to 5.0.4 (with the exception of 5.0.2.3, 5.0.2.14.2) must be met except that the packagings do not have to meet the marking requirements of Subsection 5.3. Packagings must meet the construction criteria specified in the criteria specified in Subsection 5.6.

Packagings of Subsection 2.8 must be met.

Packagings are not permitted.

Packagings of flammable liquids assigned to this packing instruction must be packed in one of the following:

- Sturdy outer packagings must be packed in one of the following sturdy outer packagings and cushioned with material so as to prevent movement/leakage:  
UN1150, UN1156, UN1160, UN1214, UN1235, UN1289, UN1290, UN1295, UN1297, UN1303, UN1350, UN1360, UN1370, UN1383, UN1386, UN1395, UN1399, UN1405, UN1418, UN1460, UN1537, and UN1549 earthware or glass inner packagings and glass-impervious absorbent material in tightly closed metal or rigid plastic receptacles before use.
- Net quantity in each outer package must not exceed the quantity shown in Column H of the List of Dangerous Goods.
- Net weight of the completed package must not exceed 30 kg (66 lb).

COMBINATION PACKAGINGS				
Glass Earthware	Plastic	Metal (not aluminum)	Aluminum	Other
L	L	L	L	
PL	PL	PL	PL	

## 5.1 PACKING INSTRUCTIONS

- Minor updates for consistent formatting, alignment with UN modal regulations
- With broadening sodium battery types, revision of several PI and addition of several new PI
- New UN entries create updates in existing PI
- New UN entries, NEW PI

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## 5.2 PACKING INSTRUCTIONS

### GASES

△ PI200, PI202, PI218  
consistent formatting

△ Table 200.B modified for UN1010

## 5.2.0.8

- Gas cylinders
- Amended to protect valves of cylinders and closed cryogenic receptacles
- Design standards

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## PI 650

- 1.2 meter drop test language has been modified for alignment with UN
- Patient Confidentiality, provision for alternative means for providing name and address SHPR / CNEE



DIAGNOSTIC SPECIMEN

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## PI 869



- Existing PI for mercury, contained in manufactured articles (UN3506)
- Changes to include UN3554
- Gallium contained in manufactured articles

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## Revised packing instructions

### PI 492 – UN 3292

- Cells and batteries containing Metallic sodium or sodium alloy
- If metallic sodium or sodium alloy batteries are installed, they must confirm to Special Prov A94

### PI 950

- PI UN3166
- **Vehicle, Flammable liquid powered**
- If metallic sodium or sodium alloy batteries are installed, they must confirm to Special Prov A94



### PI 951

- PI UN3166
- **Vehicle, Flammable gas powered**
- If metallic sodium or sodium alloy batteries are installed, they must confirm to Special Prov A94

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## PI 955



- Life-saving appliances, self inflating and non-self inflating
  - UN2990 and UN3072
  - PI adjusted to include Sodium ion batteries

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## PI 965 lithium-ion batteries and PI 966 with equipment



### PI 965

UN3480

Lithium battery

Section IA

Added note about guidance to determine rated capacity

Section IB

Added note on package capability

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### PI 966

UN3481

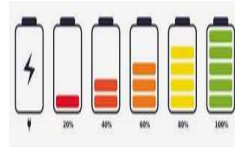
Lithium battery packed **WITH equipment**

**Section I**

State of Charge 30%

**Section II**

State of Charge 30%



### State of Charge

Max 30% SoC

Battery capacity 25%

*Transition Period*

### Mandatory 2026

Till end 2025, recommended

**As from January 1<sup>st</sup> 2026 mandatory!**

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## PI 967 lithium-ion batteries in equipment



### PI 967

UN3481

Lithium battery **IN equipment**

Section I

added preferred SoC 30%

Section II

Added preferred SoC 30%

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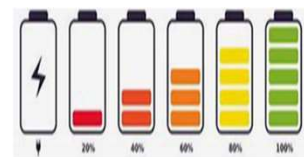
### Batteries contained **IN equipment**

Section I

- State of charge 30%
- Equipment must be secured in the packaging to prevent accidental activation

Section II

- State of charge 30%
- Stacking test!



### recommendation

Equipment **should not** be offered if battery SoC is above 30%

or

25% indicated battery capacity

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TA Dangerous Goods Regulations			
	Proper Shipping Name/Description	Class or Div. (Sub Risk)	Hazard Label(s)
	B	C	D
0	Sodium nitrite Sodium nitrite and potassium nitrate mixture, see Potassium nitrate and sodium nitrite mixture (UN 1487)	5.1 (6.1)	Oxidizer & T
7	Sodium pentachlorophenate	6.1	Toxic
7	Sodium perborate monohydrate	5.1	Oxidizer
2	Sodium perchlorate	5.1	Oxidizer
3	Sodium permanganate	5.1	Oxidizer
4	Sodium peroxide	5.1	Oxidizer
7	Sodium peroxoborate, anhydrous	5.1	Oxidizer
5	Sodium persulphate	5.1	Oxidizer
	Sodium phenolate, solid, see Phenolates, solid (UN 2905)		
2	Sodium phosphide	4.3 (6.1)	Dang. when & Toxic
5	Sodium picramate dry or wetted with less than 20% water, by weight	1.3C	

## 4.2 LIST OF DANGEROUS GOODS

### ▪ New entries

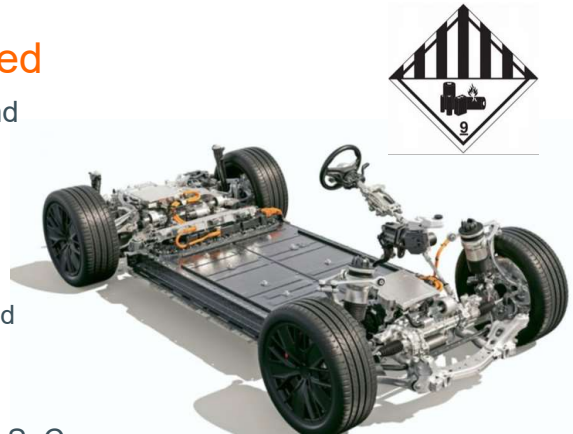
- UN3551 Sodium ion batteries
- UN3552 Sodium ion batteries contained in equipment
- UN3552 Sodium ion batteries packed with equipment
- UN3556 vehicle, lithium-ion battery powered
- UN3557 vehicle, lithium metal battery powered
- UN3558 vehicle, sodium ion battery powered

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## PI 952 Vehicles, battery powered

- Existing PI for battery powered equipment and vehicle (UN3171)
- **Added new UN entries:**
  - **UN3556**, vehicle lithium ion battery powered
  - **UN3557**, vehicle lithium metal battery powered
  - **UN3558**, vehicle sodium ion battery powered
- 01-01-25 till 31-12-2025 recommended 30% SoC
- 01-01-26 mandatory 30% SoC
- If hazard label: lithium battery label



30% SoC = approx. 25% indicated battery capacity

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## SODIUM ION BATTERIES



UN3551	UN3552		UN3552	
Sodium ion BATTERIES	CONTAINED IN equipment		PACKED WITH equipment	
CAO only	PAC / CAO		PAC / CAO	
PI 976	PI 978		PI 977	
-	Section I	Section II	Section I	Section II
UN specified packaging	UN	Rigid	UN	Rigid
DGD	DGD	AWB	DGD	AWB

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## PI for sodium ion batteries

### Battery



#### PI 976

UN3551 sodium ion battery

- §3.9.2.7 (38.3 test summary report)
- SoC 30%
- No sections ☺

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### Battery packed WITH Equipment

#### PI 977

UN3552

#### Section I

>20Wh and >100Wh

Battery eqpmt + 2 spares  
PAC 5 kg / CAO 35 kg  
Un approved packaging  
DGD

#### PI 977

UN3552

#### Section II

<20Wh and <100 Wh

Equipment must be secured in rigid outer packaging  
PAC / CAO 5 kg  
statement on AWB  
Training  
(adequate instruction cfr §1,6)

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## PI for sodium ion batteries



### PI 976

UN3551 sodium ion battery

- §3.9.2.7 (38.3 test summary report)
- SoC 30%
- No sections ☺

### Battery contained IN Equipment

#### PI 978

UN3552 IN EQUIPMENT

#### Section I

>20Wh and >100Wh

PAC 5 kg / CAO 35 kg

Strong rigid outer packaging

Secured against movement

Multiple equipment: packed so there is no contact

DGD

#### PI 978

UN3552 IN EQUIPMENT

#### Section II

<20Wh and <100 Wh

PAC / CAO 5 kg

Strong rigid outer packaging

Secured against movement

Multiple equipment: packed so there is no contact

Statement on AWB

Training

(adequate instruction cfr §1,6)

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## MARKING AND LABELLING

- 7.1.5.5 renamed: lithium battery mark (F7.1.C)
- 7.3.18.2 renamed: lithium battery label  
or sodium ion battery label  
(F7.3.X)



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SHIPPER'S DECLARATION FOR DANGEROUS GOODS	
Shipper:	AW Vehicle Ltd. Page: 47 Pages: Shipper's Reference Number: (Optional)
Consignee:	
<p>Two outbatches are signed on behalf of the Shipper for this declaration only.</p> <p><b>TRANSPORT DETAILS</b></p> <p>This shipment is subject to the IATA Dangerous Goods Regulations (DGR) and is classified as follows:</p> <p>Proper Name: LITHIUM ION BATTERY (UN3090) Classification: 9.2</p> <p>Report of Classification:</p> <p>Shipment type (select one):  <input type="checkbox"/> RETAIL (PASSENGER)  <input type="checkbox"/> RETAIL (CARGO)  <input type="checkbox"/> RETAIL (CARGO) (PASSENGER)</p> <p><b>NATURE AND QUANTITY OF DANGEROUS GOODS:</b>          UN Number or Identification Number Proper shipping name, Class or Division (secondary risk), packing group (if required), and net or gross weight or volume</p> <p>Additional handling information:</p> <p>I hereby declare that the contents of this consignment are fully and accurately described above for the purpose of shipping, and are classified, packaged, marked and labelled, placarded, and in all respects in proper condition for transport according to applicable regulations and relevant government regulations. I declare that all of the applicable air transport requirements have been met.</p> <p>Name/Title of Signatory:          Position/Date:          Signature:          (See reverse side)</p>	

## DOCUMENTATION

- No changes
- 8.1.6.9.1
  - Transitional period UN3171 battery powered vehicle
  - Can include vehicles, powered by lithium batteries
  - End 31/3/2025
- 8.2.1
  - transitional period 31/12/2024 removed
  - Dangerous goods statement on AWB

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## HANDLING - CHECKLISTS

- UN3556, vehicle lithium ion battery powered
- UN3557, vehicle lithium metal battery powered
- UN3558, vehicle sodium ion battery powered
- 01-01-25 till 31-12-2025 recommended 30% SoC
- 01-01-26 mandatory 30% SoC



30% SoC = approx. 25% indicated battery capacity

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Questions?

Thank you!

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Emergency Response Services  
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