**PRD-39 — Battery Compliance & Battery Passport Hooks**

**Intent**

Capture battery-specific compliance data (chemistry, capacity, classification, marking, collection) and generate an emerging “battery passport” payload for jurisdictions that adopt it.

**Preconditions**

• Packaging & logistics attributes available (PRD-22).

• Serial/Lot tracking enabled where required (PRD-17).

• Attachment vault and lab/QA linkage for test reports (PRD-11, PRD-34).

• Battery classification catalogs (UN numbers, packing instructions) as jurisdictional overlays.

**Steps**

• Identify Scope: mark products that contain batteries or are batteries; select chemistry (Li-ion/Li-metal/lead-acid/etc), capacity (Wh), cell/pack configuration.

• Regulatory Overlay: compute DG class/UN number, packing instruction, marking/labeling requirements; show Battery Compliance Badge with WHY (rules used).

• Producer Obligations: store producer IDs/registration for battery collection schemes by jurisdiction; track validity and attach evidence letters.

• Lab/QA Binding: attach relevant test certificates (e.g., UN 38.3); show pass/fail and expiry; failed/expired blocks new use until cleared.

• Battery Passport Payload: build signed payload (model id, chemistry, capacity, lifecycle & collection info, safety test refs, recycling guidance); store Battery Passport Receipt (hash + time + signer).

• Order/Shipping Hooks: ensure packing instructions and markings are present before shipment; otherwise HOLD with explicit fix steps.

• Change Hooks: chemistry/capacity change or new overlay snapshot triggers ImpactDelta and republish of battery passport payload.

**Edge cases**

• Mixed chemistries in kits → compute most-restrictive and require separate marking where applicable.

• Capacity unknown → block shipment and create targeted questions for the supplier (AI-assist suggests likely range based on datasheet text).

• Jurisdiction-specific exemptions → display clearly and require reviewer confirmation before relying on exemption.

**Done when**

• Every battery product has complete compliance data, current lab certifications, and an optional signed battery passport payload; shipments auto-enforce marking/packing rules with precise WHY/FIX messages.