

GCC Cold-Chain & GDP Compliance Playbook

Good Distribution Practice (GDP) standards, temperature excursion mitigation protocols, and pharma-grade logistics infrastructure across Gulf transit hubs.

1. Temperature Control Matrix for High-Ambient GCC Climates

CARGO CLASSIFICATION	TARGET TEMP. RANGE	PACKAGING & COOLANT STANDARD	GCC SUMMER RISK MITIGATION
Biologics & Vaccines	+2°C to +8°C	Validated VIP (Vacuum Insulation Panel) + Gel Packs	Tarmac heat shields; active reefers during airport ramp transfer.
Frozen Reagents & Enz.	-15°C to -25°C	Phase Change Materials (PCM) / Dry Ice Sublimation	Minimum 120-hour thermal autonomy for customs hold delays.
Cell & Gene Therapies	-60°C to -80°C	Dry Ice Shipper / Cryogenic Liquid Nitrogen (LN2)	Real-time GPS/Temp datalogger with automated SMS alerting.

2. Temperature Excursion Prevention & Chain of Custody



Real-Time Calibrated Dataloggers

MOHAP (UAE) and SFDA (KSA) require NIST-traceable, continuous dataloggers embedded inside shipment secondary packaging. Real-time cellular/IoT logs must be accessible prior to customs release.



Chain of Custody (CoC) & Customs Validation

Unbroken temperature reports matching airway bill numbers must be presented at port inspection. Any excursion above threshold mandates immediate quarantine and formal Quality Assurance (QA) stability review.



Demurrage & Ramp Hold Safeguards

To avoid thermal decay on tarmac surfaces (exceeding 45°C ambient), carriers must hold pre-approved **Pharma Cool Chain Handling status** at destination airports to guarantee immediate cold-room transfer.

3. Regional Air-Cargo Cool Hub Infrastructure

AE Dubai Al Maktoum (DWC) & Dubai International (DXB)

Features GDP-certified *Emirates SkyPharma* facilities with dedicated climate-controlled dollies and specialized storage zones (+2°C to +8°C and +15°C to +25°C).

SA Riyadh King Khalid International Airport (RUH)

Expanded SAL Pharma Facility offering dedicated cold-storage bays, expedited SFDA customs inspection lanes, and direct connection to cold-chain trucking networks into King Fahd Medical City.

QA Doha Hamad International Airport (DOH)

Home to Qatar Airways Cargo Climate Control Centre, capable of handling over 285,000 tonnes of pharma cargo annually with automated temperature-regulated transit zones.