

IQF Freezing Technology & Cold-Chain Quality Control Brief

NEGUPGROUP Seafood — August 2026

1. IQF vs. Blast/Block Freezing — Technical Comparison

Parameter	IQF Freezing	Blast / Block	Source
Air temperature	-35C to -40C	-35C to -45C	Kantaphat 2026
Freezing time	10-30 min	2-8 hours	Kantaphat 2026
Ice crystal size	Micro (sub-cellular)	Large (piercing)	Tradefrat 2026
Dehydration loss	<2-3%	10-15%	Tradefrat 2026
Throughput	Up to 10,000 kg/h	Batch-dependent	Tradefrat 2026
Portionability	Individual, free-flowing	Must thaw block	Industry std
Best for	Fillets, shrimp, scallops	Whole fish, industrial	Industry std

2. Cold-Chain Temperature Checkpoints

Frozen seafood must be maintained at -18C or below at every stage:

Stage	Temperature	Key Risk
IQF tunnel exit	-35C to -40C	N/A (freezing)
Cold storage	-18C to -25C	Temp excursion > -10C
Loading dock	< 15 min exposure	Ambient exposure
Reefer container	-18C pre-cooled	Warm container loading
Ocean transit	-18C continuous	Reefer malfunction
Destination cold store	-18C	Break at customs

3. HACCP Compliance Checklist for IQF Facilities

- [1] SUS304/316L stainless steel construction with sloped drainage
- [2] CIP (Clean-in-Place) system for automated belt & chamber disinfection
- [3] PLC touch-screen control with real-time temperature & speed logging
- [4] Fault self-diagnosis with automated alarm thresholds
- [5] Digital traceability: fingerling origin, feed, treatments, processing date
- [6] Continuous cold-storage monitoring with alarm at > -18C
- [7] Reefer container pre-cooled before loading; temps recorded at start/end
- [8] Loading completed within 2-4 hours; dock refrigerated or covered
- [9] FIFO stock rotation in cold storage
- [10] HACCP / Halal / BAP / GFSI certification chain maintained

4. Global IQF Seafood Market Data (2026)

Source	2025 Value	Forecast	Year	CAGR
Dataintel	\$31.4B	\$52.8B	2034	5.9%
PW Consulting	\$14.5B	\$23.1B	2032	6.85%
Future Market Report	\$9.9B	\$17.1B	2033	7.07%
Report Prime	\$7.2B	\$12.1B	2032	6.70%

Asia Pacific: 38.4-38.6% share, CAGR 6.8%. China: 22.7% share, >60% of global shrimp & fish IQF capacity.

5. NEGUPGROUP Product Specification Sheet

Product	Size / Grade	Packaging	Freezing
Frozen Tilapia Whole Round	300-500g / 500-800g / 800g+	10 kg/carton	Block
Frozen Tilapia Guttred (2-cut)	300-500g / 500-800g / 800g+	10 kg/carton	Block
Frozen Tilapia Fillet (skin-on)	3-5 oz / 5-7 oz	10 kg/carton	IQF
Frozen Tilapia Fillet (skinless)	3-5 oz / 5-7 oz	10 kg/carton	IQF
Frozen Pangasius Fillet (trimmed)	3-5 oz	10 kg/carton	IQF

MOQ: 1 x 40ft reefer container (approx. 26-27 MT). Certifications: HACCP / Halal / BAP. Samples within 7 working days. 5 kg/carton and private-label retail packs available on request.

NEGUPGROUP SEAFOOD	
WhatsApp	+86 13360658417
Email	zoe@negupgroup.com
Website	www.negupgroup.com