Bilge Water Treatment — OWS + IMO MEPC.107(49)

cBallast · MARPOL Annex I · Compliance reference

Regulatory framework

MARPOL Annex I regulates oily bilge water discharge. Effluent "d 15 ppm oil; 15 ppm bilge alarm monitors; automatic 3-way valve diverts back to holding tank on alarm. Type approval issued to IMO MEPC.107(49) which prescribes OWS + alarm + valve integration test.

System components

Component	Function	107(49) scope
Bilge well pumps	Draw oily water from ER bilges	Not covered
Bilge holding tank	Buffer + primary gravity separation	Not covered
OWS feed pump	Feeds OWS at controlled flow	Yes
OWS	Two-stage: gravity + coalescing/ membrane	Yes — type-approved
15 ppm bilge alarm	Continuous effluent oil measurement	Yes — type-approved
3-way discharge valve	Fail-safe divert to holding on alarm	Yes — actuator + fail-safe
Overboard discharge	Above waterline, sample point	Not covered

OWS technology

Tech	Principle	Effluent	Use
Coalescing plate	Corrugated plates, laminar flow, droplets rise	15 ppm at design	Legacy standard
Gravity + coal filter	Gravity primary + PP filter secondary	15 ppm	Modern standard
Hollow-fibre membrane	0.01 ;ÆÒ VÇG afiltration	< 5 ppm	Emulsified bilge, cruise, tanker
Chemical + gravity	De-emulsifier + gravity	15 ppm	Highly emulsified, small workboat

Logbook (ORB Part I)

Entry required for: bilge holding tank transfer, OWS start/stop, overboard discharge (start volume + duration), any 15 ppm alarm event. Signed by officer, countersigned by master. Inspected by PSC; ORB vs OWS totaliser discrepancy = MARPOL violation.

Common failure modes

Emulsified bilge from detergent — coalescing OWS reads high ppm, diverts. Solution: dedicated

detergent-holding tank or upgrade to hollow-fibre. 15 ppm sensor fouling — optical window fouls with oil film, reads false high. Weekly wipe. 3-way valve stuck — must fail-safe divert on air loss. "Magic pipe" bypass = serious PSC finding.

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