PD ISO/PAS 18215:2012

BSI Standards Publication

Ships and marine technology — Vessel machinery operations in polar waters — Guidelines

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National foreword

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A list of organizations represented on this committee can be obtained on request to its secretary.

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Foreword

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ISO/PAS 18215 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 3, *Piping and machinery*.

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Ships and marine technology — Vessel machinery operations in polar waters — Guidelines

1 Scope

This Publicly Available Specification provides guidance to ship design and operational personnel (crew) on the critical issues to consider regarding machinery, prior to and during vessel operations in the extreme conditions of the earth's polar regions.

It is intended to supplement the IMO *Code for Ships Operating in Polar Waters*, and the IACS UR "I", *Requirements Concerning Polar Class*.

2 Terms and definitions

2.1
cetane number
measure of ignition quality, or ability of a fuel to ignite, in a diesel engine

2.2
cold filter plugging point
CFFP
lowest temperature at which a given volume of diesel fuel will pass through a standard filter in a prescribed amount of time

3 Cold weather diesel engine operations

3.1 General

Operators should review their diesel engine procedures to ensure that they have a special set of operating procedures for the colder months. Procedures for summer conditions may not be adequate in extremely cold conditions.

3.2 Starting diesel engines in cold weather

Diesel engines must be adequately prepared for starting in lower temperatures. Weak batteries may not crank the starter motor fast enough or long enough to start a cold engine. As the temperature goes down, so does battery capacity. A battery that has all of its power available at 27 °C (80 °F) will have only about 46 % available power at –17 °C (0 °F). Also, the engine will be much harder to start at –17 °C because of cold, thicker oil and resistance to movement of internal moving parts. In effect, an engine is about five times harder to start at –17 °C than at 27 °C. Test weak or suspicious batteries under load before cold weather to help identify potential problems (see Clause 6 and Annex B). If batteries need replacement, they shall always be replaced with a battery equal to or more powerful than the original battery. Any accessories that draw large amounts of current before engaging the starter motor shall be turned off.

3.3 Cold weather starting aids

Diesel fuel evaporates much slower than gasoline (petrol) and requires more heat for combustion in the cylinders. In many cold weather installations, additional measures, such as those listed below, are required to ensure proper engine starting and operation.