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Guidance for the long-term Storage of Bitumen

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Eurobitume, May 2020, info@eurobitume.eu

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Introduction

This document provides guidance on the short and medium/long-term storage of bitumen in a bulk bitumen storage tank. This guidance must be used alongside the plant-based risk assessment for you to decide the most appropriate option. Careful management of temperature will help preserve the bitumen's quality.

Storage Options

It is recommended that you do **not** allow the bitumen to go cold in the storage tank. Experience over the years has shown that this can result a number of problems including:

- Condensation in the tank which could result in damage to the tank structure and possibly boil-over when the bitumen is reheated.
- Localised overheating of bitumen near the heating system when the cold bitumen is reheated.
- Cold plugs of bitumen blocking storage tank pipework.

Preferred option - Empty the bitumen tank prior to the shutdown

- If possible, every effort should be made to run down the bitumen in the storage tanks so that they can go through the shutdown period empty and the heating turned off.
- If this is not possible during commercial manufacture, consideration should be given to running the material out as 'waste asphalt' ready to be recycled when the plant restarts.
- Care should be taken when the first delivery is made after the shutdown, as condensation may have developed in the storage tank during the shutdown.
- Before refilling storage tanks, it is strongly recommended that you consult the Eurobitume UK document *Guidance for returning bitumen storage tanks to service* which can be downloaded free of charge from the Eurobitume website www.eurobitume.eu.

If it isn't possible to empty the storage tank guidance is given below for storing the bitumen at a lower temperature. This guidance applies to penetration grade, polymer modified and specialty bitumens. If in doubt contact your bitumen supplier who will advise accordingly.

Storage of bitumen for up to 1 month

- The recommended temperatures given in the table below for storage up to one month are based on, but not identical to, the minimum pumping temperatures given in the Energy Institute Bitumen Safety Code Part 11 (full reference given below).

Storage of bitumen for greater than 1 month

- The recommended temperatures given in the table below for storage of bitumen for more than one month are the long-term storage temperatures given in the Energy Institute Bitumen Safety Code Part 11 (full reference given below).

During the shutdown it is important to monitor the temperature of the bitumen to ensure there is no overheating of the product due to electronic or mechanical malfunction. If the temperature fluctuates above and below 100°C this increases the possibility of condensation forming and therefore the potential for boil-over.

Increasing the temperature of the bitumen post shutdown

- When increasing the temperature of the bitumen post shutdown, turn up the thermostat at small intervals, 5 - 10°C, to avoid localised overheating. If possible, circulate the bitumen in the storage tank when it has reached its minimum pumping temperature.
- Remember to consider the levels of the heating coils and the level of the bitumen in the storage tank.
- A risk assessment must be completed at plant level to ensure there is sufficient management of the reheating of the bitumen.
- Prior to using the bitumen, it is recommended that the bitumen is tested to ensure that it complies with the relevant specification.

Recommended short and medium/long-term storage temperatures

Bitumen grade	Recommended short-term storage temperatures, °C (Less than 1 month)	Recommended medium/long-term storage temperatures, °C (Greater than 1 month)
40/60	120	80
50/70	120	80
70/100	115	75
100/150	115	70
160/220	115	65
250/330	115	60
Polymer Modified and Specialty bitumens	Seek advice from your bitumen supplier	

Reference

Model Code of Safe Practice Part 11: Bitumen Safety Code (4th Edition)