The check engine light is illuminated, or the AdBlue warning is active, with recorded faults related to AdBlue quality or concentration.

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Version	1
Function group	49.20 - Exhaust gas aftertreatment
Date	3/23/26
Validity	All diesel vehicles with Adblue systems
Reason for change	

Complaint

Customer reports an illuminated check engine light and or an AdBlue system warning indicating AdBlue quality out of specification. The vehicle may enter reduced performance mode. One or more of the following fault codes related to the AdBlue tank may be stored:

P206B31: Malfunction of the concentration sensor for AdBlue; the signal is absent.

P203B31: Malfunction of the AdBlue fill level sensor; the signal is absent.

P300494: The quality of the AdBlue is insufficient.

Background

AdBlue must meet ISO 22241 quality requirements.

ISO 22241 urea content limits for AdBlue are 31.8 percent to 33.2 percent by mass.

AdBlue begins to crystallize and freeze at approximately 12 degrees F.

Freeze-thaw does not degrade the product when uncontaminated, and the bulk concentration returns to normal after complete thaw and mixing.

Cause

In cold soak conditions and during freeze thaw exposure, the tank contents may not be uniform at the time of sampling or system checks.

During freezing and partial thaw, ice formation can temporarily create concentration gradients in the tank.

As a result, urea percent readings can vary based on sample location and the state of thaw and mixing, which can produce apparent out of range readings even though the bulk fluid returns to normal after mixing.

Remedy

Testing

Do not use a single urea percent reading taken from frozen, partially frozen, or not fully mixed AdBlue to make a repair or responsibility decision.

Confirm full thaw and ensure tank contents are mixed before sampling.

1. Confirm full thaw

- Confirm the AdBlue tank and associated components are fully thawed before sampling.

- Do not sample slushy or partially frozen fluid.

2. Mix tank contents

- Perform a road drive intended to mix the tank contents before sampling.

- Idle time alone is not a reliable substitute for mixing.

3. Sample and measure

- Take the sample and measure with the MB refractometer per the MB tool instructions.

- Record the urea percent value.

4. Interpret the result against ISO 22241 limits

- Within specification is 31.8 percent to 33.2 percent urea by mass.

5. Repeat if out of specification

- If out of specification, repeat after an additional mixing drive to reduce sampling variation.

- If still out of specification after full thaw, mixing, and repeat measurement, treat as a true out of specification result and proceed with further diagnosis per applicable MB guidance.

Acceptance criteria

AdBlue is within the ISO 22241 specification when the urea percent is between 31.8 percent and 33.2 percent by mass.

Values outside this range are out of specification and require further diagnosis after completing the full thaw and mixing procedure above.

Cross reference

For vehicles with fault codes P206B31, P203B31, or P300494, refer to LI49.20-N-078838 for the detailed diagnostic and repair procedure.

If a SCR or AdBlue warning reset is required after correction, refer to LI49.20-N-075995.

Complete the diagnostic and corrective steps first. Perform the warning reset only after the underlying fault condition has been corrected.

Warranty information and claim handling

Scope

This section provides claim handling guidance for AdBlue concentration-related concerns on vehicles that may have experienced cold soak, freezing, or extended stationary storage.

Required documentation for any claim consideration

- Ambient conditions and whether the vehicle experienced a cold soak below 12 degrees F.

- Confirmation that the AdBlue was fully thawed at the time of sampling.

- Road test duration and mileage used to mix the tank.

- Urea percent readings initial, after mixing, and after retest.

- Confirmation of AdBlue source (factory fill or ISO 22241 compliant source).

- Fault codes and guided test results.

Claim handling position

A. Vehicles within the first 12 months or 12,000 miles of warranty from the warranty start date, whichever occurs first

Two possible outcomes are expected in cold soak and freeze-thaw scenarios.

A1. Returns to specification after thaw and mixing

If the urea percent returns to ISO 22241 limits (31.8 percent to 33.2 percent by mass) after full thaw, a mixing drive, and a retest:

- Do not replace AdBlue.

- Document the results and close as no repair required.

- Claim diagnosis time as applicable (quick test and road test) per standard claim rules.

A2. Remains out of specification after thaw and mixing, or a covered component defect is documented

Claims may be submitted for diagnosis and corrective action when:

- Factory fill is confirmed, or AdBlue source is confirmed to meet ISO 22241, and

- The dealer has documented full thaw, a mixing drive, and a retest, and

- The urea percent remains outside ISO 22241 limits (31.8 percent to 33.2 percent by mass) after the retest, or a covered component defect is documented.

Corrective action may include:

- Drain and refill the AdBlue tank with fresh ISO 22241-compliant AdBlue, or

- Replace the failed component(s) per applicable MB guidance, or both.

B. Vehicles beyond the first 12 months of warranty from the warranty start date

Out-of-specification urea percent readings should be handled per normal warranty policy and standard responsibility guidelines.

AdBlue replacement in this scenario is not warrantable unless a covered component defect is documented as the direct cause.

Diagnosis for a confirmed component defect may be claimed per standard policy and documentation requirements.

Responsibility note

Do not use a single refractometer reading taken from frozen, partially frozen, or not fully mixed AdBlue as the basis for a warranty or responsibility decision.

Disclaimer

NOTE: The information contained in this document is intended for use by trained, professional technicians with the knowledge to properly and safely perform diagnosis and repairs on Mercedes-Benz vehicles, using Mercedes-Benz approved tools and equipment. It informs service technicians about conditions that could occur in certain vehicles and provides information that could assist in proper vehicle diagnosis, service, or repair. It does not indicate that a defect is present in any vehicle referenced in this document nor does it imply warranty coverage. DO NOT assume that a symptom or condition, or a described cause of a symptom or condition, affects any particular vehicle or groups of vehicles, or that a described repair applies to any particular vehicle or groups of vehicles. There can be multiple causes resulting in the same or similar symptoms or conditions described in this document, and trained professional service technicians must use their diagnostic skills to make evaluations on a case-by-case basis. The information contained in this document does not guarantee warranty coverage nor does it extend the vehicle's warranty in any way.

Symptoms
Power generation > Engine management > Indicator lamp > Engine diagnosis > lit
Power generation > Engine management > Indicator lamp > Electronic diesel control > lit

Operation numbers/damage codes				
Op. no.	Operation text	Time	Damage code	Note