



The Role of Quality Assurance in Asphalt Recycling

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How can quality be made visible?



Reuse of reclaimed asphalt



Around 14 million tonnes of reclaimed asphalt are generated in Germany each year

Germany achieves a recycling rate of more than 80%

Goal: maximise reuse!

Why reuse is so valuable



Complete, high-quality reuse of reclaimed asphalt is possible

Can value be retained in the material cycle?

→ Aggregates, bitumen and filler

High RA contents strengthen resilience

→ **security of supply and cost stability**

We need consistent quality instead of surprises

Reuse is a policy objective ...

KrWG

Kreislauf

Circular Economy Act (KrWG)

- Promoting the

KrWG § 45 Public Sector

The priority of reuse must be observed

- Public contracting authorities should promote reuse
- **Tender documents must provide for the reuse of reclaimed asphalt (since 2010)**

2012

Beck-Texte im dtv

... but not specified in tenders

911 Asphalttschichten

Hinweis zu Asphalttschichten

Bei sämtlichem Asphaltmischgut ist als Füller Kalkhydrat mit 2 Gewichts-% bezogen auf das Gestein zu verwenden.

Das Mischgut für die Deckschicht ist ohne Verwendung von RC-Material herzustellen.

The asphalt mixture for the surface course is to be produced without the use of reclaimed asphalt.

Asphaltbinderschicht aus Asphaltbinder AC 16 B N her-
nach Unterlagen des AG herstellen. Anlieferung des
Asphaltmischguts in thermoisolierten
Transportbehältern.
In Verkehrsflächen der Belastungsklasse Bk 3,2.
Einbaudicke ca. 6,0 cm zuzügl. Profilausgleich.
Bindemittel = 10/40-65 A.
Grobe Gesteinskörnung = Kategorie C 95/1.
Fremdfüller = Kalksteinfüller Kategorie CC 70.
Haftverbessernde Zusätze nach Unterlagen des AG.
Fahrbahn der L 828 einschließlich Zwickel und Streifen.
Randausbildung geradlinig und scharfkantig:
Herstellung der Randflanke mittels Kantenschuh an der
Einbaubohle des Fertigers und Vibration. Nachverdichten
mit Kantenandrückrolle an der Walze. Neigung 2:1.

3.500,000 t

The addition of reclaimed asphalt is not permitted.

----- 500,00 m2

Asphaltdecksch. AC 8 D N herst.

Asphaltdeckschicht aus Asphaltbeton für Asphaltdeck-
schichten AC 8 D N herstellen.

Anlieferung des Asphaltmischguts in thermoisolierten
Transportbehältern.

Einbau in Weganschlüsse.

Einbaugewicht = 100 kg/m2.

9 Einzelflächen, über 25 bis 100 m2.

Bindemittel = 70/100.

Bei sauren Gesteinsarten (z. B. Grauwacke, Quarzit)

Zugabe von 1,5 M.-% Kalkhydrat zur Haftverbesserung.

Kalksteinfüller (Kategorie CC 70). Diabasfüller nur
zusammen mit groben Gesteinskörnungen aus Diabas

Asph
Seitli

Without the use of reclaimed asphalt.

Asphaltbindersch.a. AC 16 B N herst

... Freitext ... *Profilausgleich

... Freitext ... *Kalk.füller CC 70

m. Thermobehälter

Asphaltbinderschicht aus Asphaltbinder AC 16 B N her-
stellen.

Einbau in als Vorprofil zum Profilausgleich in

Einzelflächen, Schichtdicke gemäß Abstandsmessung durch
eine Schnur.

Lieferung mit thermoisolierten Transportfahrzeugen
gemäß Baubeschreibung.

Randausbildung Neigung 2:1.

Without the use of reclaimed asphalt.

Marshall-Probekörper der Erstprüfung ca. 2,5 Vol% durch
Erhöhung des Bindemittelgehaltes um mindestens 0,5%.

Fremdfüller, Eigenfüller ist nicht zulässig. Füller=

Kalksteinfüller der Kategorie CC 70, Diabasfüller nur
zusammen mit groben Gesteinskörnungen aus Diabas.

Grobe Gesteinskörnung = Kategorie C 100/0.

Bindemittel = 50/70.

Art der Zusammensetzung

Nachweis eines mittleren Leuchtdichtekoeffizienten q_0 mind.

0 070 cd/(m²*l x) am resultierenden Asphaltmischgut Nachweis

Asphalt mixture without the use of reclaimed asphalt.

Asphalttragsch. aus AC 32 T N herst

Bk1,8*... Freitext ...

... Freitext ... *... Freitext ...

Asphalttragschicht aus Asphalttragschichtmischgut

AC 32 TN als obere Schicht einer mehrschichtigen

Asphaltbefestigung einschließlich Profilausgleich
herstellen.

In Verkehrsflächen der Belastungsklassen Bk1,8,
Fahrbahn, Nebenflächen und Einmündungsbereiche einschl.
Zwickel und Streifen.

Schichtdicke unterschiedlich: über 8 bis 14 cm
einschließlich Profilausgleich.

Einbau mit einem Fertiger in Streifenbreite einschl.
Aufweitungen.

Lieferung mit thermoisolierten Transportfahrzeugen
gemäß Baubeschreibung.

Randausbildung geradlinig und scharfkantig, Herstellung
der Randflanke mittels beheizbarem Kantenschuh an der

Einbaubohle des Fertigers und Vibration. Nachverdichten
mit Kantenandrückrolle an der Walze. Neigung 2:1.

Bindemittel 70/100, Hohlraumgehalt am

Marshall-Probekörper der Erstprüfung ca. 4,0 Vol% durch
Erhöhung des Mindest-Bindemittelgehaltes um mindestens
0,5%.

Füller= Kalksteinfüller der Kategorie CC 70.

Grobe Gesteinskörnung = Kategorie C 100/0.

3.500,000 t

....

Without the use of reclaimed asphalt.

Fahrstreifenbreite einschl. Aufweitungen siehe Tabelle 1
der Baubeschreibung.

no-win situation

Many companies are investing in technology and processes

Reuse is desired - but is not specified in tenders!

➡ **A no-win situation!**

There is a lack of trust in the system of reuse!

- “Sometimes works” instead of “always works”

➡ **Best practice must become the industry standard**

RAL Quality Mark 808

Processing and storage of reclaimed asphalt

Objective

The quality mark is a tool for:

- Trust
- Process reliability
- Transparency for clients

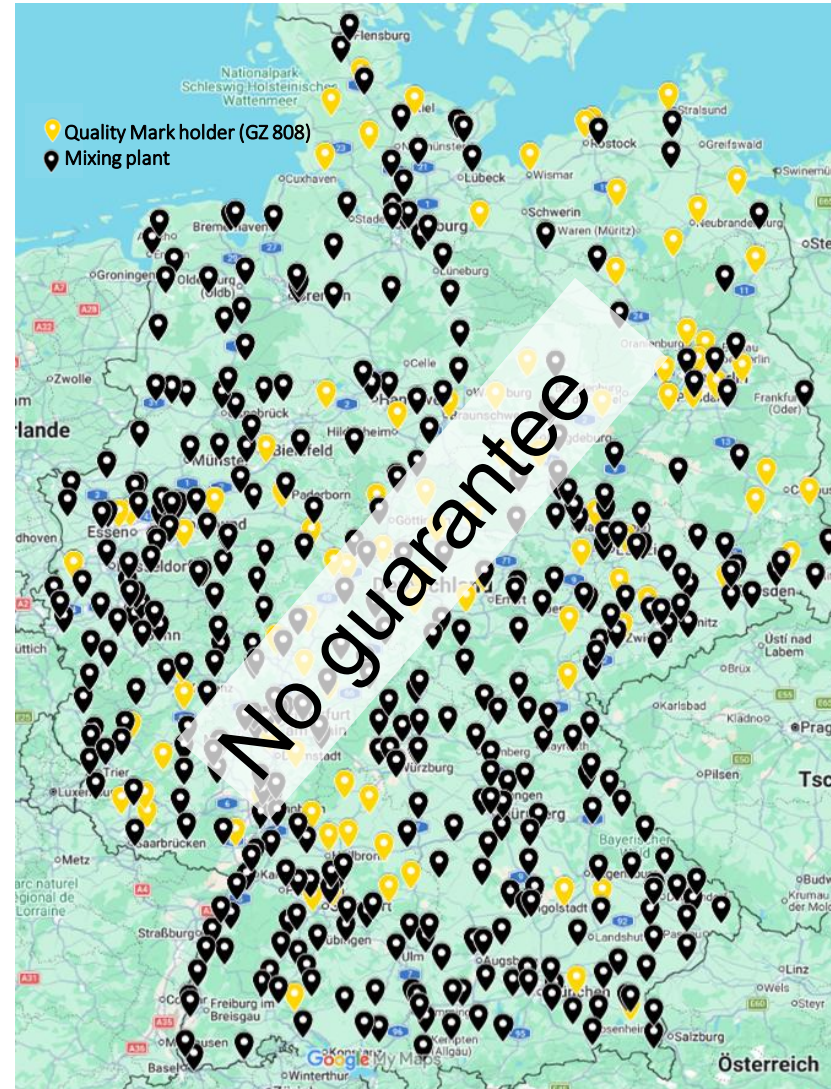
Facts

- Founded in 2023
- First RAL-Mark 808 awarded in 2024
- 26 members
- Approx. 110 operating sites certified



Quality Mark holders

Regional distribution of Quality Mark holders (qualitative)





What is assessed?

Quality and Test Specifications

1. Storage Area conditions
2. Delivery agreements
3. Incoming material inspection
4. Procedures for non-conforming deliveries
5. Processing and homogenisation of delivered reclaimed asphalt
6. Stock management of reclaimed asphalt
7. Organisational measures



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1. Area conditions



Requirements

1. Paved storage area / prevention of contamination
2. Temporary storage for potentially contaminated reclaimed asphalt
3. Cleanliness and order
4. Weighbridge
5. Current overview plan

2. Delivery agreements

Requirements

Are delivery agreements in place that define:

1. Expected quantities of reclaimed asphalt?
2. Properties of the reclaimed asphalt?
3. Classification as recycling class A in accordance with german regulations?
4. Are requirements defined for compliance with category FM1/0.1 in accordance with german regulations?

ArtNr.	Bezeichnung	Menge	Lieferart
Asphaltemischwerk Landau KG			
36171213007223	AC 32 TN 50/70 50%RC	460,00 t	Abholung
36143213205123	AC 11 DN 50/70 30%AH 35%RC	140,00 t	Abholung
332	Annahme bit. Fräsgut (Decke/Binder)	1,00 t	Annahme
334	Annahme bit. Fräsgut (Tragschicht/Binder/Decke)	1,00 t	Annahme
B2100	Asphaltaufbruch <60x60x40 cm	1,00 t	Annahme
313133213203119	AC 8 DN 50/70 30%AH 20%RC	1,00 t	Abholung

Fräsgut:
Bedingungen für die Annahme von Asphaltaufbruch/Fräsgut:
Erweichungspunkt Ring und Kugel am rückgewonnenen Bindemittel: <= 70° C
Gesamt-PAK-Gehalt im Fräsgut nach EPA: < 10 mg/kg
Die im Fräsgut enthaltenen Zuschlagsstoffe müssen der TL Gestein-StB04 entsprechen.
Frei von Fremdbestandteilen, maximaler Fremdstoffgehalt
Gruppe 1 (Beton, Ziegel, Zementmörtel, Metalle, Stoffe aus anderen Schichten <= 1 M.-%
Gruppe 2 (sonstige Materialien, wie z.B. synthetische Materialien, Holz, Kunststoffe usw. <=0,1 M.-%

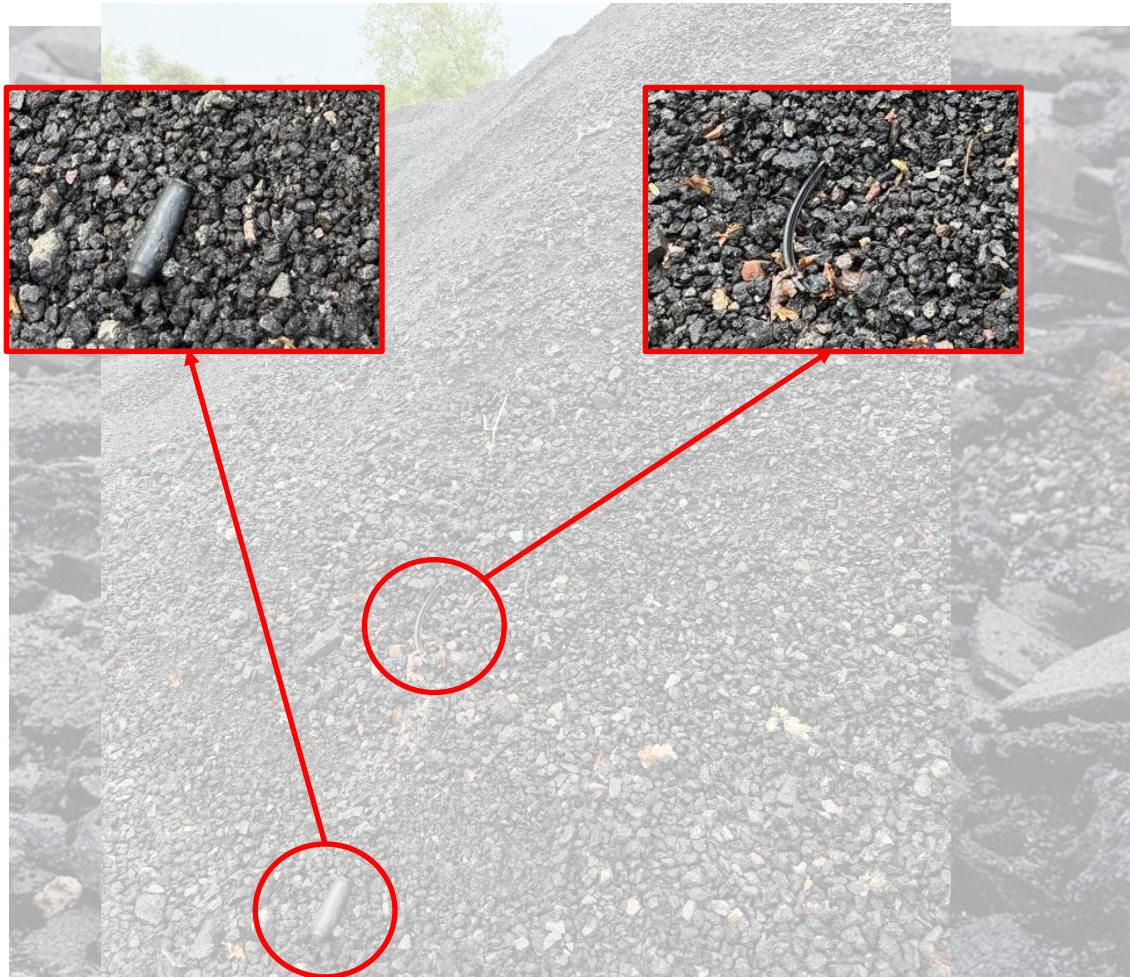
3. Incoming material inspection



Requirements

1. Documented weighing
2. Inspection by site personnel
3. Is the unloading point or stockpile assigned by site personnel?

4. Non-conforming deliveries



Requirements

1. Rapid PAH test where contamination is suspected?
2. Segregation of potentially non-conforming material?
3. Are materials not classified as recycling class A under RuVA-StB rejected?
 - ... See more

5. Homogenisation



Requirements

1. Does reclaimed-asphalt stockpile management prevent adverse effects on homogeneity?
2. Where necessary, is the material screened and/or crushed to achieve the required grading?

6. Stockpiling of reclaimed asphalt



Requirements

1. Is reclaimed asphalt stored in separate stockpiles?
2. Is the reclaimed asphalt tested in accordance with TL AG-StB?
3. Are reclaimed-asphalt stockpiles used according to their assigned classification?
4. Are stockpiles clearly marked in accordance with the stockpile plan?

6. Stockpiling of reclaimed asphalt

Clearly identified ...



... and always kept up to date!



Validty Date: TODAY!

7. Organisational measures



Requirements

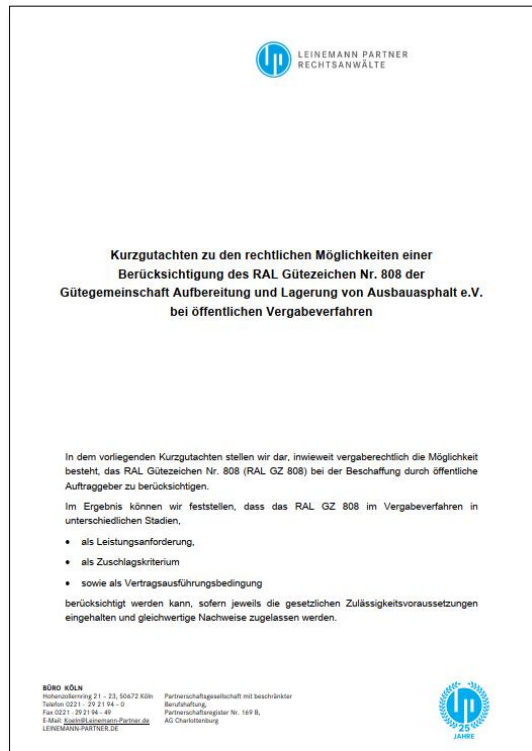
1. Are responsibilities clearly defined?
2. Are instructions available for representative sampling of reclaimed asphalt?
3. Is a wheel loader available to support sampling?
4. Are staff regularly trained in handling reclaimed asphalt?

Little effort – big effect

- Additional costs are nearly negligible
- Minimal administrative effort
- Verification without disclosing proprietary processes
- A current minimum standard that is updated quickly and dynamically
- Early adopters become visible; others receive a clear way “how to”
- Companies unwilling to commit and invest are excluded
- **Quality-focused companies set the industry standard**

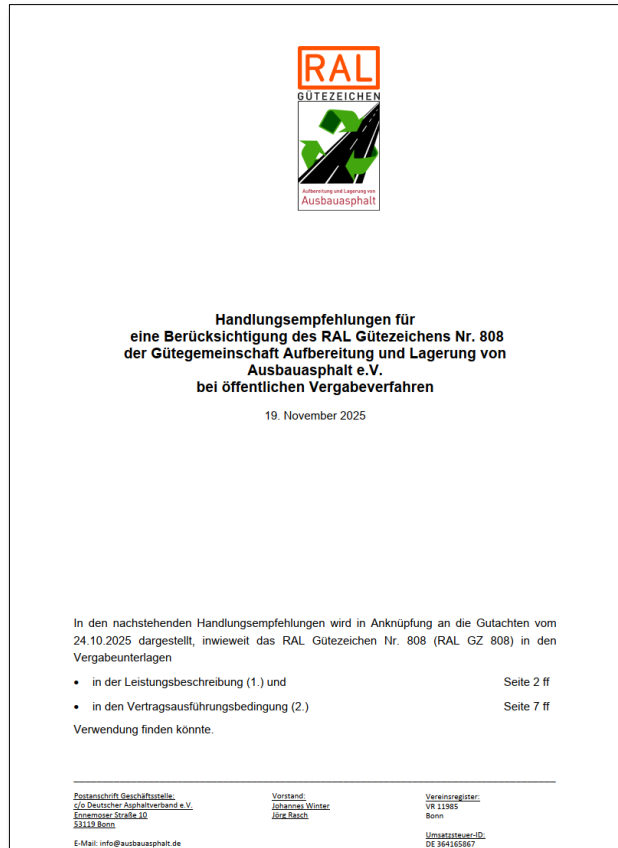
RAL Quality Mark 808 in tenders

- Legally compliant specification of RAL GZ 808 in tenders
 - Legal opinion (lawyer Leinemann & Partner)



- Result of the legal opinion:
 - RAL Quality Mark 808 may be specified in procurement procedures in a legally compliant manner
- Possible applications:
 - I. Technical specification
 - II. Award criterion
 - III. Contract condition
- Legal context:
 - GZ 808 may not be required exclusively
 - Equivalent evidence must be accepted

■ Recommendations for action



- Objective of the recommendations
 - Practical guide for public tenders
 - shows specifically how GZ 808 can be included
- Concrete, legally secure wording proposals for tenders
 - Works description
 - Technical specifications
 - Contract conditions



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The City of Kiel has included RAL Quality Mark 808 in a call for tender

- Binding requirement for RAL GZ 808 in the general contract documents

*Submission of evidence/information/documents:
“RAL Quality Mark No. 808, or an equivalent certificate, must
be submitted with the tender.”*

City of Kiel

Saxon State Ministry for Infrastructure and Regional Development

- Catalogue of rules / supplementary regulations for Saxony

"In order to increase the reuse of reclaimed asphalt, asphalt producers must provide evidence of compliance with RAL Quality Mark 808, or equivalent evidence, from 1 January 2028.

Evidence shall be submitted after contract award, but no later than with the proof of suitability."

Saxon State Ministry

Free Hanseatic City of Hamburg

- Implementation in the ZTV/St-Hmb.

*“The requirement for ‘RAL GZ 808 or equivalent’ is implemented through
ZTV/St-Hmb.”*

Free Hanseatic City of Hamburg

Conclusion

- Reuse is the biggest lever
- The hurdle is trust
- Once trust is established, high RA contents become standard
- Legally compliant specification is possible in tenders
- First tenders already issued, others currently in preparation
- Consistently specifying the Quality Mark protects investments made by quality-focused companies!

Equal standards for all protect those who do it right!



Thank you!

RAL Quality Association for Reclaimed Asphalt Processing and Storage e.V.

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