



Klimakutt og mer vei for pengene





 **VELDE**



VOLVO FH

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Velde sin visjon

HAMM

VELDE

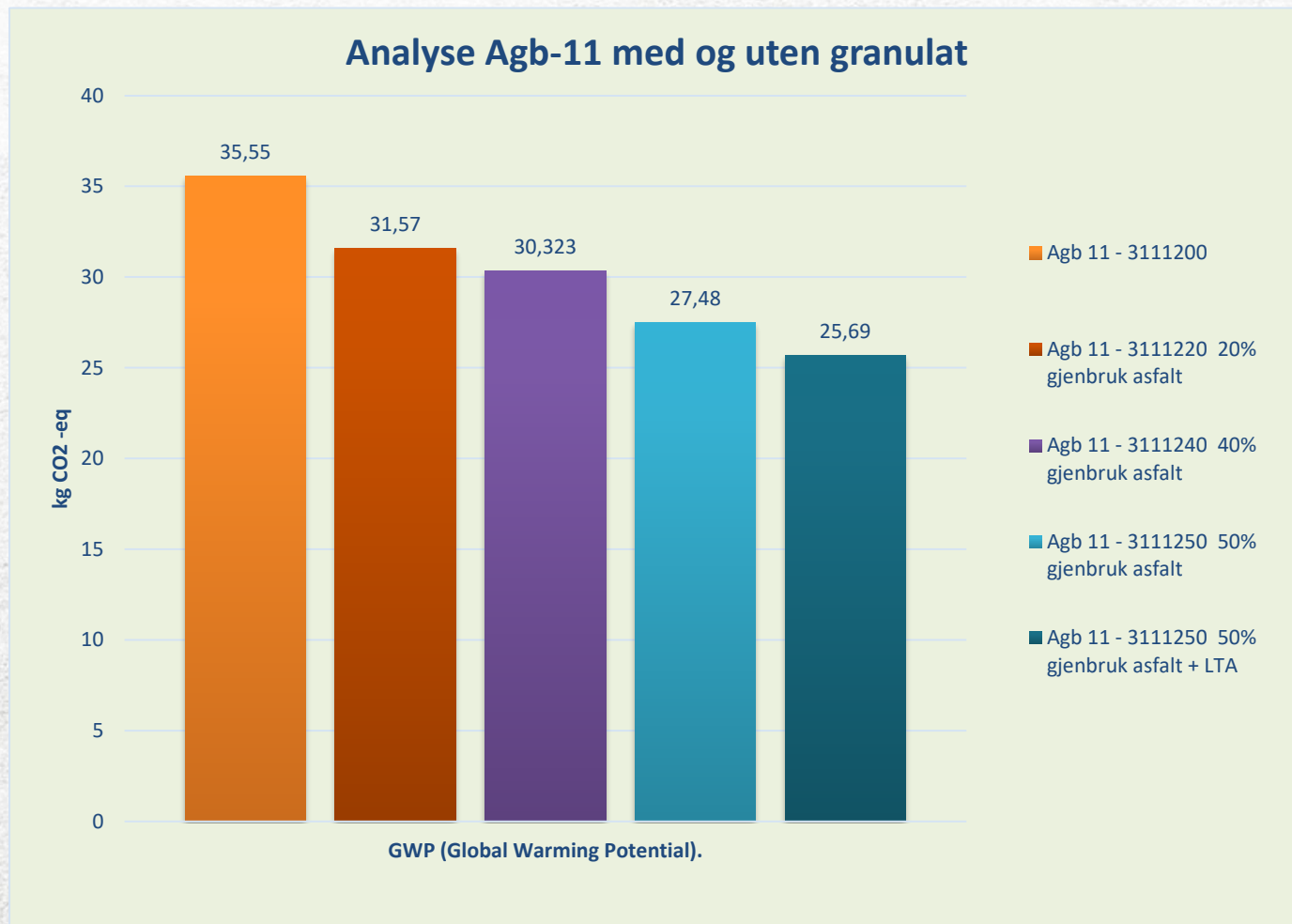
Gjenvinning av gravemasse / forurenset masse



Gjenvinning av asfalt




Analyse om CO₂ utslipp av Agb-11 med og uten granulat



- **Agb 11 50% + LTA (Referanse)**
- Agb 11 50%: 7% mer CO₂
- Agb 11 40%: 18% mer CO₂
- Agb 11 20%: 23% mer CO₂
- Agb 11 uten granulat: 38% mer CO₂

*LTA=Lav temperatur asfalt

City of Hamburg – et eksempel til etterfølgelse

 **GPP** In practice

Recycled asphalt used for road resurfacing

CITY OF HAMBURG, GERMANY

Procurement objectives


In Hamburg there has been a long tradition of road construction methods that use materials such as factory-made mineral aggregates from demolished buildings or incineration ashes. Since the 1980s, Hamburg authorities have worked towards increasing the use of granulated asphalt, which had been recycled from existing roads. Reclaimed asphalt pavement (RAP) consists of approximately 95% mineral aggregates and 5% bitumen.

The use of RAP began with the deeper, base courses of roads. After proof of performance was asserted and sound experience had been gained from these applications, granulated asphalt made its way to the more sophisticated and technically critical binder and surface courses. The City's final goal is to proceed from using less than 50% RAP in these layers to recycling of 100% of the original construction materials when refurbishing and resurfacing roads. Using RAP is especially significant for surface layers (wearing courses).

Background

The Free Hanseatic City of Hamburg was selected the [European Environmental Capital in 2011](#). Green public procurement principles are included in the City's overarching [procurement policy](#) and there are additional environmental contract requirements imposed by the City, which are specific to road construction.

Under German National Law on [Recycling and Waste](#), departments within local councils are required to increase the proportion of waste recycled. Furthermore, laws require the use of any recyclable material in the highest possible position of any value chain. Asphalt is a recyclable material and is therefore subject to this legislation. Hamburg has taken a significant step forward to encourage an increase of recycling rates in construction materials by establishing an [online exchange](#) for soil, debris & construction materials.



Hamburg prescribes the use of a minimum 35% white aggregates in order to brighten road surfaces and to have a colder, deformation resistant road surface in summer. The high cost of these aggregate materials increased the incentive to recycle more than just base courses. A more careful consideration of the whole process of asphalt production was also triggered by recent dramatic increases in bitumen prices. The City allowed a group of private companies, who originally came up with the full recycling technology, to test its use on public roads owned by the City State. After the quality was then tested by Hamburg's road construction authority, the City was reassured about the use of the 100% recycling process. Having renovated two other roads using this technique, a restricted tender procedure was conducted, with five companies invited to bid.

Criteria used

Subject matter of the contract: The refurbishment and resurfacing of Mönckebergstrasse (of one of Hamburg's main roads)

Description of works: After the general properties of the material for reusing are tested, the surface course of the current asphalt concrete must be milled to a depth of 4cm. The material should then be transported to an asphalt mixing plant equipped with state-of-the-art RAP processing equipment. Due to the aging of bitumen in old roads, the binder has to be rejuvenated, which is achieved by adding a mixture of flux oil and wax. Low-temperature asphalt (warm mix asphalt) should be used, which helps to achieve an efficient and environmentally friendly asphalt production and laying process. This implies:

- A lower energy input
- Reduced costs
- Less CO₂ and other harmful emissions
- Improved health conditions for operating staff
- Less nuisance for residents near inner-city construction sites
- Lower wear and tear on mixing plants

It was stipulated that the temperatures during the entire production and laying process should be as low as possible. Whereas "normal" asphalt is produced at temperatures up to 180°C, warm mix asphalt needs only about 140-150°C.

- Hamburg – European Environmental Capital i 2011
- Grønn innkjøpspolitikk
- Har jobbet med gjenbruk i asfalt siden 1980
- Begynte i nedre bærelag – men ville ha i bindlag og slitelag
- Hamburgs overordnede målsetning var å øke fra mindre enn 50% til 100% gjenbruk
- Prosjekt: Mönckebergstrasse – en av Hamburgs hovedgater

Hamburg – et eksempel til etterfølgelse

Teknologi benyttet:

- State of the art gjenvinningsteknologi
- Rejuvinator (for å gjøre bindemiddelet nytt)
- Lav temperatur asfalt
- Riktig teknologi for resirkulering av asfaltflak

Resultat:

- Lavere oppvarmingsbehov
- 30% reduserte kostnader
- Bedre helse for arbeiderne
- Samme kvalitet og bestandighet som ny asfalt



Fremtidsrettet