



RECLAIMED ASPHALT PAVEMENT (RAP) IN NORWAY

The use of Reclaimed Asphalt Pavement (RAP) in Norway is monitored by the non profit association “The Info Center for Recycling of Asphalt” named KFA, Kontrollordningen For Asfaltgjenvinning. KFA was established in 2001.

The primary objective of KFA was to avoid any possible environmental taxation on the production of or the use of asphalt materials. KFA conduct various activities to increase the collection and reuse of reclaimed asphalt pavement materials, to promote the use of recycled asphalt materials and to document the degree of recycling of RAP at a national level. The initial goal was to reach a recycling ratio of 80 % of annual collected RAP.

KFA is a voluntary association between the Norwegian Public Road Administration, municipalities and communities as road owners and the asphalt producers. KFA is financed by collecting a green fee on bitumen sold for the use in the road sector in Norway. The green fee is currently about 75 cent per ton bitumen. The collection and administration of this green fee is carried out by the suppliers of bitumen within the road sector in Norway.

The company Veiteknisk Institutt is given the responsibility for running and for overseeing the KFA agreement on behalf of KFA.

The owners of storage sites must seek permission by local National environmental authorities to establish new storage sites. KFA has no authority.

Maximum allowable storage time of general construction waste materials is normally three years. RAP as untreated asphalt slabs is considered a waste material. However, treated RAP materials, such as milled asphalt materials directly from the road and crushed slabs of asphalt (asphalt granulate), is not considered a waste material. In general there is not set any limit on storage time for such treated RAP.

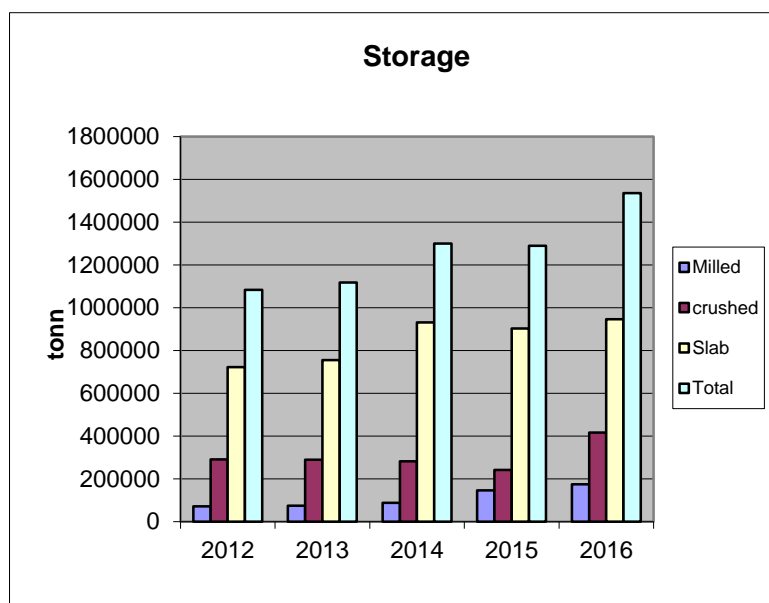
KFA is constantly updating a national register of RAP storage sites. At the end of each year contact is made to each known storage site, the Public Road Administration, road owners of community roads that are known to have RAP storage site, as well as asphalt producers and waste/recycling firms. Each site is asked to report tonnage of received and used/ exported RAP at the end of each year. This way KFA is able to put together and publish an annual national report of the amount of RAP collected, recycled and stored on a national and yearly basis. The results are published in an annual report from KFA. KFA is currently (Dec 2016) aware of about 220 RAP storage sites throughout Norway



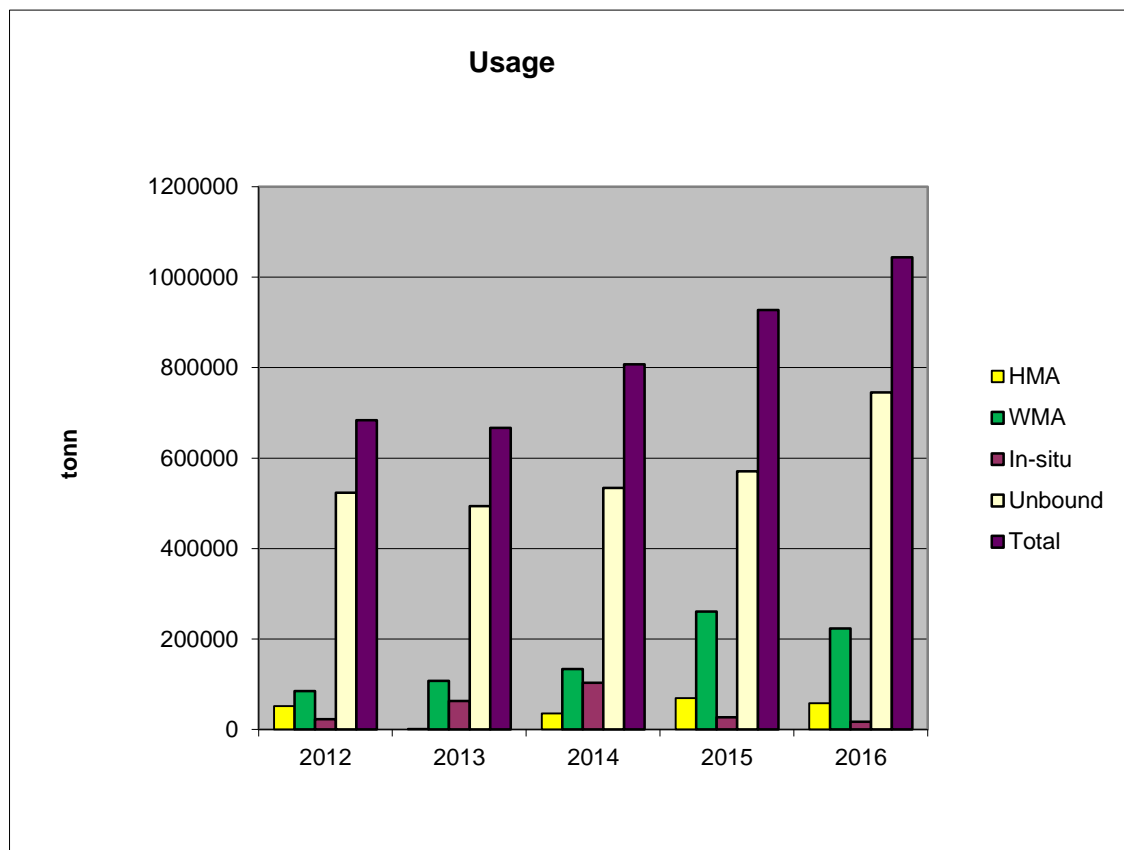
Storage-site for RAP (asphalt waste materials).

The total annual production of all asphalt materials in Norway, including the reuse of RAP at the asphalt plants, was 7,2 million tons in 2016.

A total of 1.112.108 tons RAP was collected at the known storage sites during 2016. A total 1.043.864 ton RAP was reported used and recycled during 2016. There was thus a balance between collection and usage of RAP in 2016. Total amount of reused RAP represents thus 14% of total production of asphalt in 2016. A total of 1.535.842 tons RAP was reported stored by December 2016 at national level. Stored volume of RAP represents thus about 1,5 year of recycled RAP.



Total 281.673 tons granulated RAP was used in production of new asphalt in 2016. This is 27% of total reused RAP in 2016. Hence, a total of 745.307 tons RAP (71% of total reused RAP) was reused, not as input in production of new asphalt but as granulate asphalt without being added any new bitumen. Only 57.991 tons of the 281.673 tons reused RAP at asphalt plants was preheated in a second heating-drum at asphalt plants prior to being added into the production of new asphalt on the plant. Only 3 out of about 90 asphalt plants in Norway are set up with such secondary heating-drum for adding RAP in the production.



The asphalt market in Norway has a huge potential for utilizing RAP at a higher level as input in production of new asphalt on plants and as being preheated prior to being added into the plants. KFA is putting effort in collecting and publishing guidelines and recommendations on the web-site related to collection, storage and various ways for reuse of RAP. In addition KFA offers various services such as:

- Establishing new storage site (primarily environmental aspects and as well as handling volume and equipments)
- Registration of materials that is delivered to a storage; with focus on keeping the RAP materials free of other waste products as well as weighing and reporting the amount of received materials
- Various use of RAP (in-place, at asphalt plants, etc) including techniques
- Visiting asphalt producers and road authorities in order to promote the usage of RAP
- Checking RAP-samples for possible tar-content (PAH16).

The web-site www.asfaltgjenvinning.no provides more information (in Norwegian).