

Recycling Combinatie Reko B.V. is active in the field of total recycling of construction and demolition waste (C&DW) and has therefore become well known as a reliable supplier of aggregates and filler material for road constructions, asphalt and concrete industries.

REKO: Leading in recycling of building materials



In recent years, Reko has increasingly developed into a market leader in the recycling of mineral construction and demolition waste (C&DW) and cleaning tar asphalt (TAG). With the commissioning of the thermal treatment unit for processing tar asphalt, Reko is the largest in this field.

Mission and Strategy

Our objective is to clean mineral construction and demolition waste and Tar Asphalt in an environmentally responsible way and to recycle it into high-quality aggregates for use in the concrete, road construction and asphalt industry (cradle to cradle). In our process we don't produce any waste (100% recycling).

Reko at Vondelingenplaat Rt. The world's largest licensed integrated processing site for circular economy.

Vondelingenplaat near Rotterdam is the largest recycling processing site for mineral waste. This site is strategically located in the heart of the main port Rotterdam and easily accessible by both road and water (max. vessel capacity 25 000 tonnes).

Our three main activities take place on the 36-hectare site: a crushing unit for producing granulates, an asphalt plant for producing hot asphalt for road construction and a thermal treatment unit for cleaning tar asphalt. The crusher and the thermal treatment unit are among the largest of their type.



REKO Vondelingenplaat
The largest recycling location
in the Netherlands

Since 2001, the re-use of tar asphalt granulate (highly contaminated with PAH's) is no longer permissible in the Netherlands. The Dutch government wants to remove tar asphalt from the "chain" once and for all. Thermal cleaning of tar asphalt has therefore been included as a minimum standard in the national waste plan (LAP). In practice, this means that the tar asphalt that is realised must be thermally cleaned.

Thermal cleaning of Tar Asphalt Granulate (TAG)



In recent years two types of asphalt have been used in road construction in the Netherlands. Asphalt based on tar (a coal product) and asphalt based on bitumen (oil product). Both types of asphalt consist of sand, gravel fillers and a binding agent. In tar asphalt tar has been used as a binding agent. The use of tar as binding agent in new asphalt has been permitted since 1990. However, until 2001, Tar Asphalt Granulate (TAG) was permitted for use uncleaned, for example as a base for new roads. Since 2001 however, this form of re-use has also been prohibited. The Dutch government wants to remove tar asphalt permanently so that there will be no more risks for the environment.

A highly effective principle

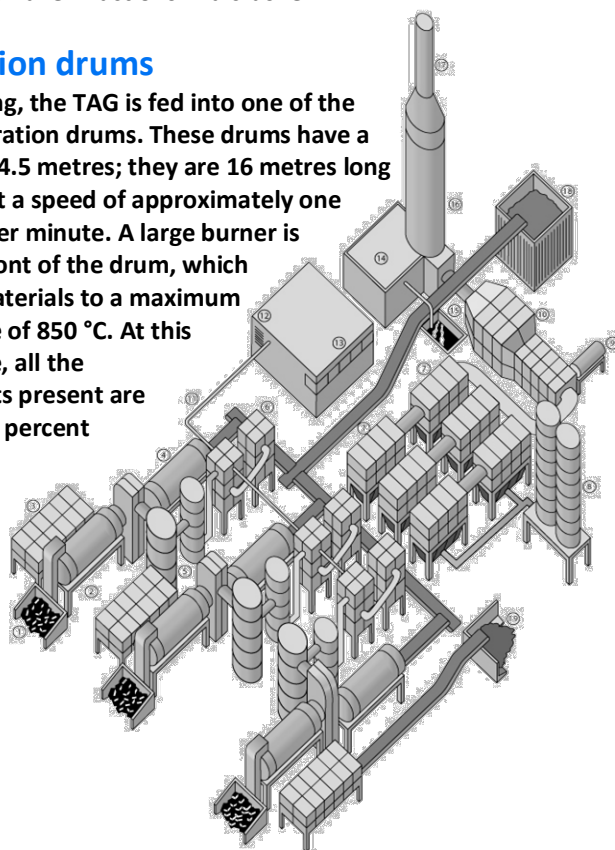
In theory, cleaning tar asphalt is simple. The tar asphalt consists of sand, gravel and a polluting binding agent tar. By heating it at high temperature, the tar is removed and the contaminated gases released are cleaned. What remains is clean sand, gravel and filler.

TAG cleaning step-by-step

The tar asphalt that is released in reconstructing roads is transported by lorry or ship, where it is weighted and accepted. Before the tar asphalt can be cleaned, it is reduced to smaller fractions in a crusher.

Incineration drums

After crushing, the TAG is fed into one of the three incineration drums. These drums have a diameter of 4.5 metres; they are 16 metres long and rotate at a speed of approximately one revolution per minute. A large burner is located in front of the drum, which heats the materials to a maximum temperature of 850 °C. At this temperature, all the contaminants present are virtually 100 percent eliminated.



Cooling drum

After the incineration drum, the cleaned material has a temperature of 500-750 °C. Depending on its intended use, this material (sand and gravel) is cooled in a rotating cooling drum using air. The hot air release is re-used as burner air in the incineration drum (optimum re-use energy).

Cleaning the exhaust gases

Contaminants can still be present in the exhaust gases released from the incineration drum, such as non-incinerated tar residues, fine particles, nitrogen oxide and sulphur oxide. Cleaning the exhaust gases that are released during thermal cleaning of TAG is a technologically sophisticated process.

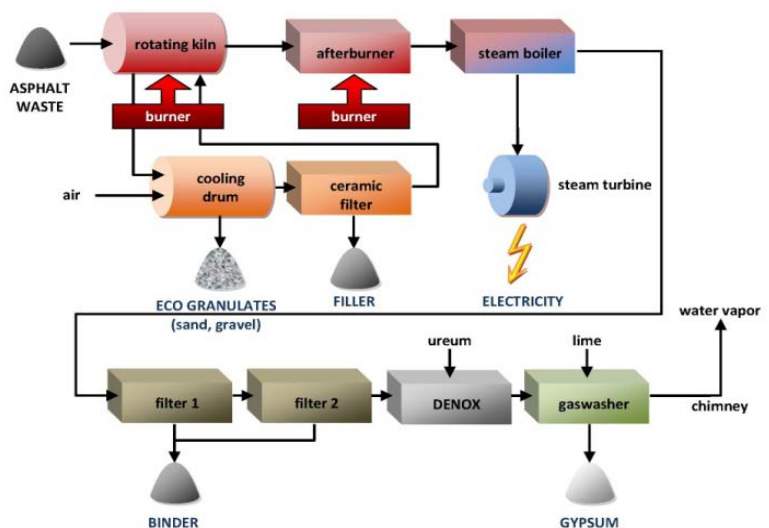
Afterburner

In the afterburner, all the exhaust gases released are heated for at least 2 seconds to 850 °C. Although, in theory, all the tar burns in the first revolving drum, any remaining contaminants are treated and eliminated in the afterburner. The hot gases are then fed through a boiler, where they are cooled. Steam is produced in this boiler. The steam passes through a steam turbine and then drives a generator for producing electricity (5-7 megawatts. Generates plenty of electricity for the entire plant).

Dust removal filters

After cooling. Dust is removed from the gases in the first dust removal filter. A second dust removal filter acts as a "watchdog". It is also possible to inject active carbon; this only takes place if residual contaminants are still present in the gases. These residual contaminants are bound to active carbon and collected in the second cloth filter.

Schematic overview thermal treatment process



DeNOx (catalytic converter)

Following dust removal, the gases are passed through a DeNOx unit. In this unit, nitrogen oxide in the exhaust gases is converted into harmless nitrogen and oxygen.

Gas washer

Tar has a high sulphur content. When it is incinerated, sulphur oxide occurs. For this reason the last step in the process involves treating the exhaust gases in what is known as a gas washer. By washing the gases in water in which lime is dissolved, the sulphur oxide present is converted chemically into gypsum what is suitable for high-quality applications in various building products.

Eco-granulates & Eco-filler

In its sophisticated thermal cleaning unit at the Vondelingenplaat Reko cleans approximately 750 000 tonnes of Tar asphalt per year. In this unique cleaning process, which was developed in-house, all the components of the tar asphalt are recycled into valuable materials. These building materials - mainly granulates - are supplied for use in concrete and asphalt industry.

Reko is a dynamic and innovating company.
Therefore this information is subject to change.

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