

It is an object of the present invention to reduce the temperature of the combustion products as a whole to an acceptable level without the need for a mixing device exposed to the combustion products.

Thus according to the invention there is provided a method of operating an incinerator to dispose of boil-off gas on an LNG carrier, which method comprises burning the boil-off gas in the presence of air to form a stream of combustion products extending away from the burning gas towards an exhaust of the incinerator and admitting dilution air into the incinerator to cool the combustion products to a mean temperature lower than the autoignition temperature of the boil-off gas, characterised in that said method comprises blowing at least a proportion  $D^p$  of the dilution air across the incinerator between the burning gas and the exhaust to substantially entirely penetrate the stream of combustion products orthogonally thereto, to break up the stream and mix turbulently with the combustion products substantially across a full diameter of the stream of combustion products, thereby to form an exhaust mixture of which no part is hotter than said auto-ignition temperature and in that the incinerator is so configured and arranged that no part of the incinerator is located in the stream of combustion products.

The incinerator is preferably generally cylindrical about a vertical axis and comprises a plurality of nozzles for blowing said proportion  $D^p$  of the dilution air across the incinerator and the nozzles configured and arranged to direct said proportion  $D^p$  of the dilution air substantially radially across the incinerator. Turbulence of the mixing process may be improved by locating the nozzles at respectively differing distances along the stream of combustion products. The incinerator may comprise a plenum chamber or the like (which may be a room) whereby the dilution air is delivered to the nozzles. Preferably the dilution air is pressurised and each nozzle formed to accelerate the dilution air passing therethrough.

Other aspects of the invention will be apparent from the following description which is made by way of example only with reference to the accompanying schematic drawings, in which -

## Claims

1. A method of operating an incinerator to dispose of boil-off gas on an LNG carrier, which method comprises burning the boil-off gas in the presence of combustion air to form a stream of combustion products extending away from the burning gas towards an exhaust of the incinerator and admitting dilution air into the incinerator to cool the combustion products to a mean temperature lower than the auto-ignition temperature of the boil-off gas, characterised in that said method comprises blowing at least a proportion  $D^p$  of the dilution air across the incinerator between the burning gas and the exhaust, to substantially entirely penetrate the stream of combustion products orthogonally thereto, to break up the stream and mix turbulently with the combustion products substantially across a full diameter of the stream of combustion products, thereby to form an exhaust mixture of which no part is hotter than said auto-ignition temperature and in that the incinerator is so configured and arranged that no part of the incinerator is located in the stream of combustion products.

2. A method of operating an incinerator as claimed in claim 1 wherein the incinerator is generally cylindrical about a vertical axis and comprises a plurality of nozzles for blowing said proportion  $D^p$  of the dilution air across the incinerator, characterised in configuring and arranging said nozzles to direct blowing said proportion  $D^p$  of the dilution air substantially radially across the incinerator.

3. A method of operating an incinerator as claimed in claim 2 characterised in configuring and arranging said nozzles to include at least one pair oppositely directed towards said axis and vertically offset from each other.

4. A method of operating an incinerator as claimed in claim 2 or claim 3 characterised in configuring a plenum chamber or the like whereby the dilution air is delivered to the nozzles.