Stamicarbon’s unique proprietary solution to design urea melt plants with zero ammonia emission in an environmental and cost friendly way.
The challenge
• Reduce the ecological footprint of the urea melt plant.
• Reduce the ammonia emission from the urea melt plant.
• Reduce nuisance of ammonia emission in the vicinity of the plant.

In most cases, the continuous ammonia emission sources in a modern CO\textsubscript{2} stripping melt process are limited to:
• Vent gases from the absorbers.
• Breathing system of the atmospheric storage tanks.

Stamicarbon’s solution
Stamicarbon’s ADVANCE DESIGN™ Thermal Treatment consumes the remaining combustibles in the off-gas and adds support gas, if needed, to allow full incineration of the vented ammonia vapors from the urea melt plant. The waste heat is recovered by steam generation, which is beneficial in e.g. the stripper of the urea melt plant. Any NO\textsubscript{x} formed in the process is treated by means of thermal and catalytic DeNO\textsubscript{x}. The result is a urea melt plant with zero ammonia emission without any need for an environmentally unfriendly and costly flare.

The stand-alone ADVANCE DESIGN™ Thermal Treatment unit can be located next to the urea plant to treat all continuous off-gases. Depending on site conditions, it can be situated on a plot starting from 4 x 4 meters with minimum tie-ins. It is available as a skid-mounted packaged unit for logistical flexibility and simple erection.

Unique benefits:
• Most environmental friendly solution for off-gas treatment in the urea melt plant
• Lowest emissions available for a urea melt plant with guaranteed low NH\textsubscript{3} and NO\textsubscript{x} emission (expected NH\textsubscript{3} emission of < 5 ppm)
• Complementary MP steam generation, typical 1 – 2 tons per hour up to 20 bar
• Low CAPEX and OPEX with return on investment
• No nitrogen consumption
• Suitable for all plants of any process license
• Small foot print at ground level
• Minimum gas consumption and a fraction compared to flaring
Environmental impact of off-gas treatment

GWP: Global Warming Potential
TOFP: Tropospheric Ozone Forming Potential
ODP: Ozone Depletion Potential

A - Burner
B - Combustion step
C - NOx Thermal reduction step - SNCR
D - Flue gas cooling step
E - NOx Catalytic reduction step - SCR

Unique benefits:
- Most environmentally friendly solution for off-gas treatment in the urea melt plant
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- Complementary MP steam generation, typical 1 – 2 tons per hour up to 20 bar
- Low CAPEX and OPEX with return on investment
- No nitrogen consumption
- Suitable for all plants of any process license
- Small footprint at ground level
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