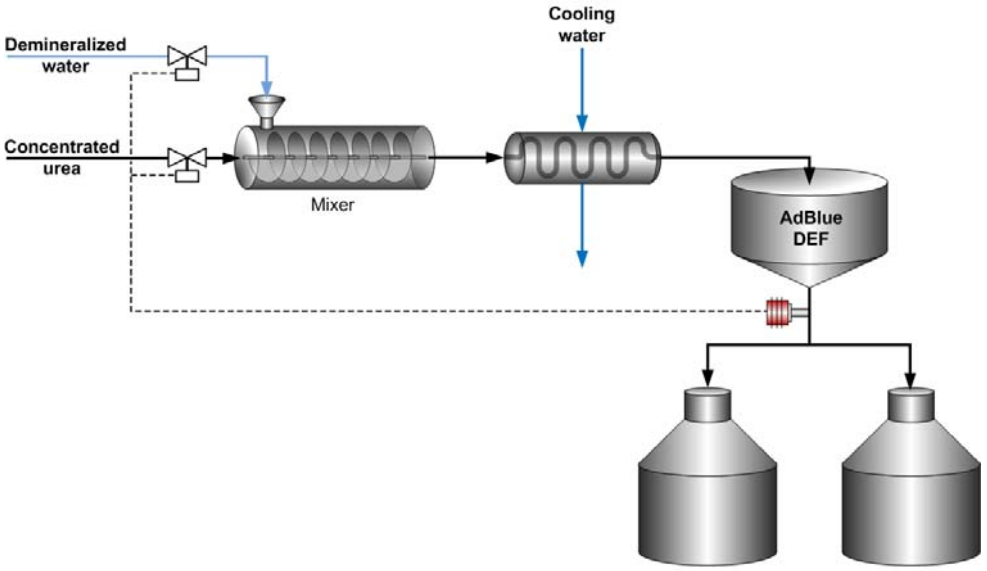
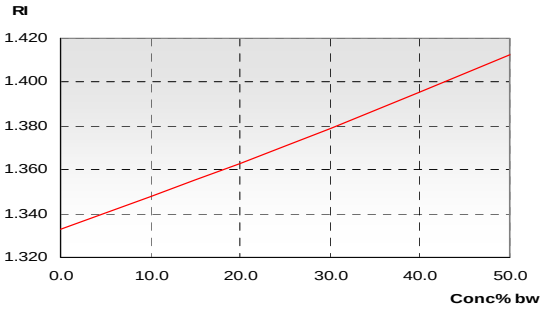


ADBLUE (AUS32) UREA SOLUTION, DIESEL EXHAUST FLUID (DEF)

Typical end products

Automotive grade urea solution

Chemical curve: Automotive grade urea R.I. per Conc% b.w. at Ref. Temp. of 20˚C



Introduction

The automotive urea AdBlue, also known by the generic name Diesel Exhaust Fluid (DEF), is the registered trademark for AUS32 (Aqueous Urea Solution 32.5%).

AdBlue is used as a reagent to reduce the harmful emissions from the internal diesel combustion engines. In order to use AdBlue, the vehicle must be equipped with a SCR (selective catalytic reduction) system. The fluid is passed through the SCR and into the exhaust.

As the name AUS32 suggests, AdBlue is made by using urea mixed with demineralised water resulting in a 32.5 % aqueous urea solution. It is colorless, non-toxic and safe to handle.

Application

A stream of concentrated urea is blended with demineralised high purity water in a mixer. The process temperature is 25-50°C (77-122°F) and the urea mix is cooled after the mixer.

The K-Patents Process Refractometer PR-23-GP is mounted in the outlet pipe to control the concentration of the urea mix. The concentration is maintained between 31.8 and 33.2% bw (32.5% optimum) with automatic adjustment of the demineralised water feed. The lowest freezing point for urea is around -11°C (12°F) at the concentration of 32.5% by weight. The K-Patents refractometer sensor provides an output signal for the control valves of concentrated urea and demineralised water. The urea solution AdBlue 32.5 % is transferred to the storage tanks.

The dual connectivity of two sensors with one transmitter reduces the investment costs, when two or more measurements are needed.

Installation

The K-Patents refractometer is used to measure the concentration of ethylene glycol in the cooling system in the compressor stations.

Typical measurement ranges are 0-40% or 30-70% and the normal process temperatures are from -25ºC (-13ºF) to 40ºC (104ºF), depending on the customer's needs.

Instrumentation	Description
	K-Patents Process Refractometer PR-23-GP is an industrial refractometer for large pipe sizes and tanks, cookers, crystallizers and kettles. Installation through a flange or clamp connection.
Measurement range:	Refractive Index (nD) 1.3200 – 1.5300, corresponding to 0-100 % by weight.