



# PRE-FRACTIONATION NGL AMINE SWEETENING

Before NGL (Natural Gas Liquids) fractionation facilities can process mixed NGL streams into sales quality products (ethane, propane, normal butane, isobutane and natural gasoline), it needs to be treated to remove hydrogen sulfide (H<sub>2</sub>S) and carbon dioxide (CO<sub>2</sub>). This process is called amine treating, also known as amine scrubbing or gas sweetening.

NGL containing H<sub>2</sub>S and CO<sub>2</sub> are commonly referred to as sour or acid laden NGL and amine sweetening is essential to make the NGLs marketable and suitable for transportation. H<sub>2</sub>S and CO<sub>2</sub> need to be removed because:

- H<sub>2</sub>S is an extremely poisonous, lethal and corrosive.
- CO<sub>2</sub> when combined with water creates carbonic acid which is corrosive to pipeline infrastructure.
- CO<sub>2</sub> also reduces the BTU value of the NGL and in concentrations of more than 2% or 3%, it becomes unmarketable.

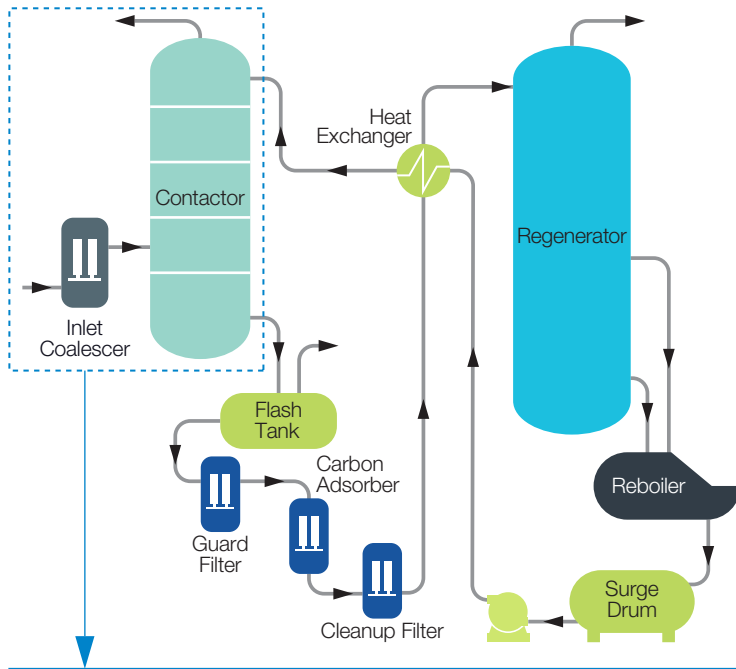
Once the NGL stream has had the acid gases and water vapor removed, it is now classified as dry and sweet, and is suitable for sale or further processing.

Traditionally, amine sweetening is done in large amine contact towers. These are capital-intensive large-scale projects. Based on our decades of filtration and separation expertise and experience, Jonell Systems has developed a unique compact solution for pre-fractionation NGL amine contacting that reduces the footprint of the solution, cost and time to market.

## Advantages of Jonell Systems' compact NGL Pre-Fractionation Amine Sweetening Solution:

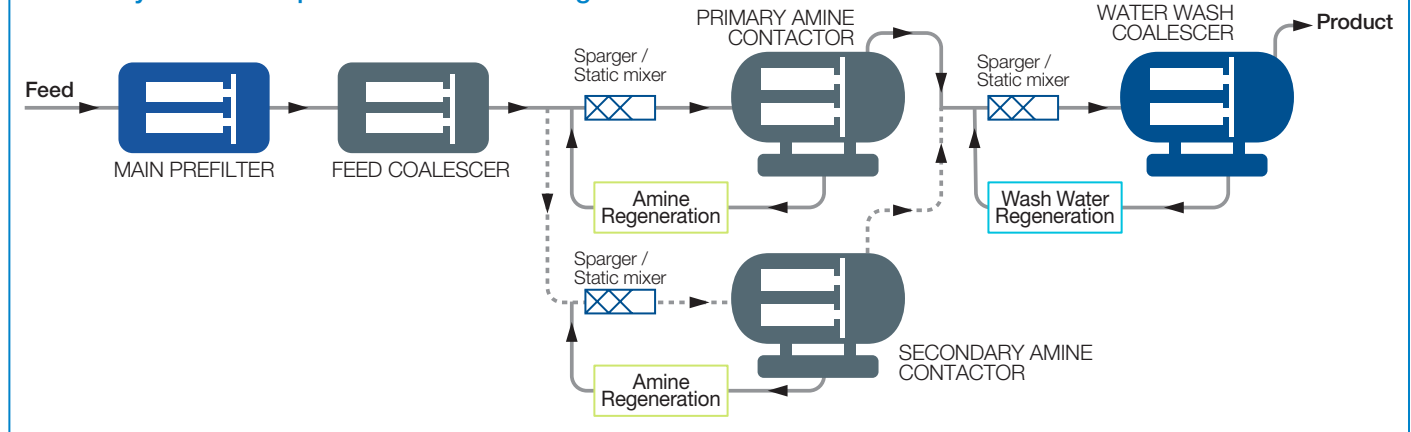
- Modular compact system that can easily be scaled
- Reduced manufacturing & commissioning times
- Field proven solution currently installed in many locations
- Design, manufacturing, project management and commissioning expertise
- Solution package includes:
  - Pre-filtration for dirt and solids removal
  - Feed coalesce for water removal
  - Compact Amine contactor/ separator
  - Amine regeneration loop
  - Post amine sweetening water wash coalescer for improved efficiency

## Traditional Amine Sweetening Solution



This schematic should be viewed as a general example of where filtration systems could be located within a Pre-Fractionation Amine Sweetening Process. These processes will vary between companies and facilities. As such, each application should be reviewed and considered individually in order to choose the correct system technology.

## Jonell Systems' Compact Amine Sweetening Solution



### Compact Amine Sweetening Solution by Jonell Systems

### Traditional large Amine contact tower solutions

<b>Approach</b>	Unique approach of reducing the size of the droplet before coalescing leading to faster mass transfer.	Less degree of control over the amine contact process and higher risk of carryover due to upset.
<b>Capital cost</b>	Lower due to the compact size of the vessels.	Higher due to the size and scale of large contact towers.
<b>Maintenance cost</b>	Lower due to ease of maintenance and changeouts driven by horizontal configuration and package size of the vessels.	Higher due to the effort involved in maintaining the large contact towers and the support infrastructure needed to access them.
<b>Risk management</b>	Ability to respond and fix the issues with carryover are easier and faster since the contactor turnover is faster (hours).	Ability to respond is slower and cost is higher since the Contactor turnaround time is much longer (days) and involves specialized crew and equipment.
<b>Response to upset conditions</b>	Faster & easier.	Slower & more expensive.

If you are looking to optimize your existing Amine Sweetening facility or are looking to build a new one, get in touch with Jonell systems to discuss your NGL Fractionation plant application.

