







IN CUTTING, BRAZING AND HEATING



**GD**

*Your Partner for Gas Solutions*

-  An additive for LPG and NG
-  It enhances gas performance and substitutes acetylene in oxy-cutting, brazing and industrial heating
-  It increases the flame temperature making the process faster and more profitable
-  Chemtane 2 turns LPG and NG into a first-rate fuel with much better performing features



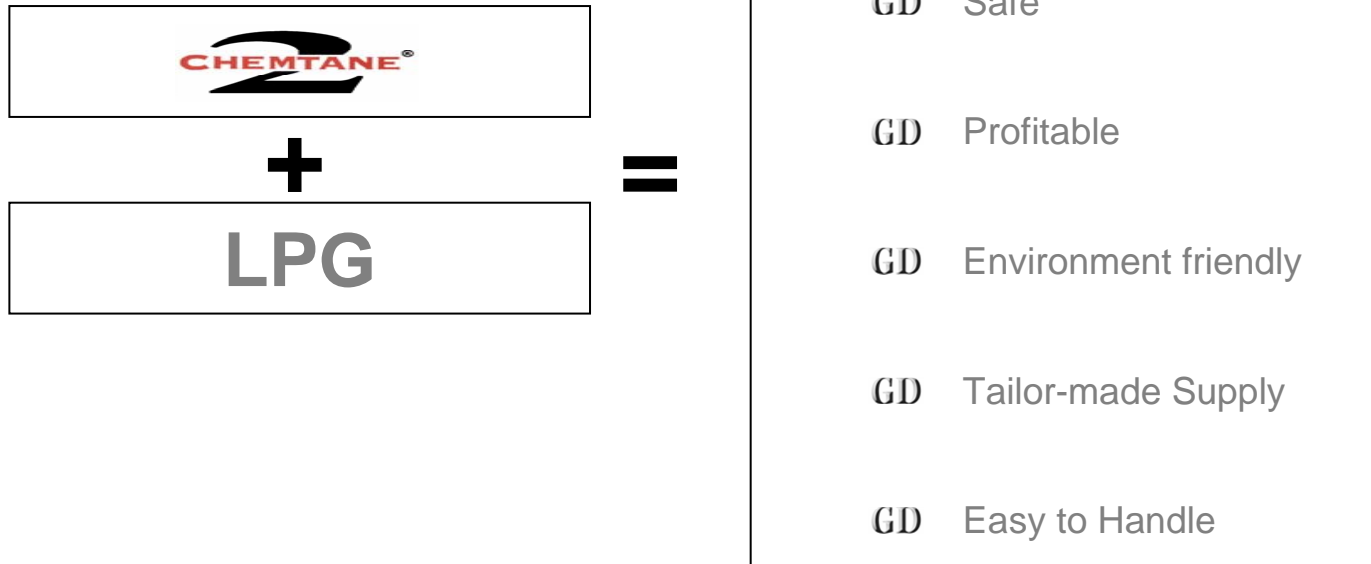
Chemtane 2 provides outstanding performance to LPG:

 It increases efficiency and production

 It saves man power



 It saves oxygen

## Chemtane 2 improves your Productivity!










GD Higher flame temperature in oxygen than acetylene

-  Flame temperature over 3.300 °C in Oxygen
-  Effective heat content of 54.517 (BTUs/Kg) at 15,6 °C and 1atm.

GD Longer and more powerful secondary flame

-  Preheat time noticeably shorter than other competitive fuels
-  Quick and clean piercing
-  No gouge marks when cutting
-  No rolled edges
-  No burrs left

GD Versatile: It fits multiple applications

How does Chemtane 2 produce an increase in flame temperature?

This is a phenomenon we call: **“Secondary Combustion!”**



Most of the time, engineers think in terms of the thermodynamic enthalpy (bond energy) of a fuel which predicts the amount of heat produced by combustion. Chemtane 2 does not add significantly to the thermodynamic enthalpic value of the fuel. How then can Chemtane 2 produce an increase in flame temperature? Flame temperature can be calculated by knowing the initial temperatures of the oxygen and fuel, the heat of combustion (thermodynamic enthalpy) of the fuel and the combustion products along with their respective specific heat values at constant pressure ( $C_p$ ). Specific heat value means the amount of heat energy which will raise the temperature of a given quantity of a specific molecule by one degree. The mechanism of action whereby Chemtane 2 enhances the flame temperature is a fundamentally kinetic phenomenon not strictly a result of thermodynamics.

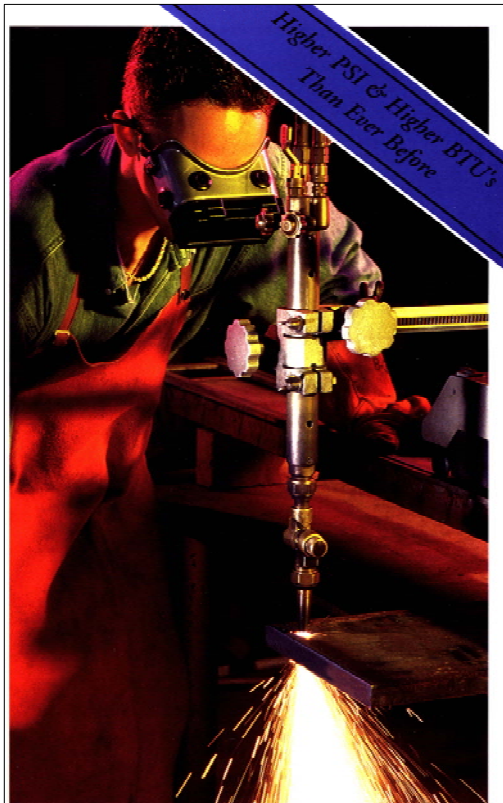
Now, this is significant to the situation with Chemtane 2 for kinetic reasons, not strictly and only thermodynamic reasons. This could be called "the phenomenon of secondary combustion." Let's say Chemtane 2 has a  $C_7$  hydrocarbon and is mixed with a  $C_3$  hydrocarbon (propane) which is then burned. In a given period of time the propane is burned. The rate at which it burns is called the burn rate or velocity of combustion. The linear flow rate of fuel to the torch must be faster than the velocity of combustion. In this same period of time the  $C_7$  hydrocarbon is partially burned giving a  $C_3$  to  $C_4$  hydrocarbon fragment which is heated to a high temperature like 4000 °F. This combustion process continues as the fragments travel away from the torch into the region of the inner and outer cone. The fragments then burn and release heat energy. This is exactly where the heat is needed for cutting metal. It might be said that the "business end" of the torch has been enhanced. The hot zone of the torch is increased in diameter and length. The increased diameter of the hot zones allows smooth cuts and the increased length allows a greater working distance.








Stable Pre-mix Flame



With Cutting Oxygen Flame



-  Minimum slag and weldback
-  Limited Torch backfire
-  Burns clean – no soot or smoke
-  Narrow explosive limits
-  Stable, non sensitive to shocks

***Never take your safety for granted!***

GD 1 kg Chemtane 2 equals 1,6 kg of acetylene in production:



 Reduces handling and storage

 Reduces change out time

GD Its high flame temperature:

 Reduces fuel costs

 Reduces oxygen costs

 Reduces labor cost

GD It is a clean gas:


 Reduces torch rebuilt



 No toxic residues left

 Non toxic-odorized for detection

 It does not contain acetone

 It contributes to energy saving through reduced fuel and oxygen consumption



Chemtane 2 can be supplied in:

**Cylinders:**




 Different sizes available

 Standard types in the LPG industry.





### *Bulk:*

-  In the same propane tank
-  Avoiding uncomfortable acetylene packs.
-  Removing batteries

GD 1 cylinder with 11 kg of Chemtane 2 weighs 22 kg and equals in production more than 3 cylinders of 7 kg of acetylene with a total weight of more than 200 kg.



1 cylinder = 22 kg

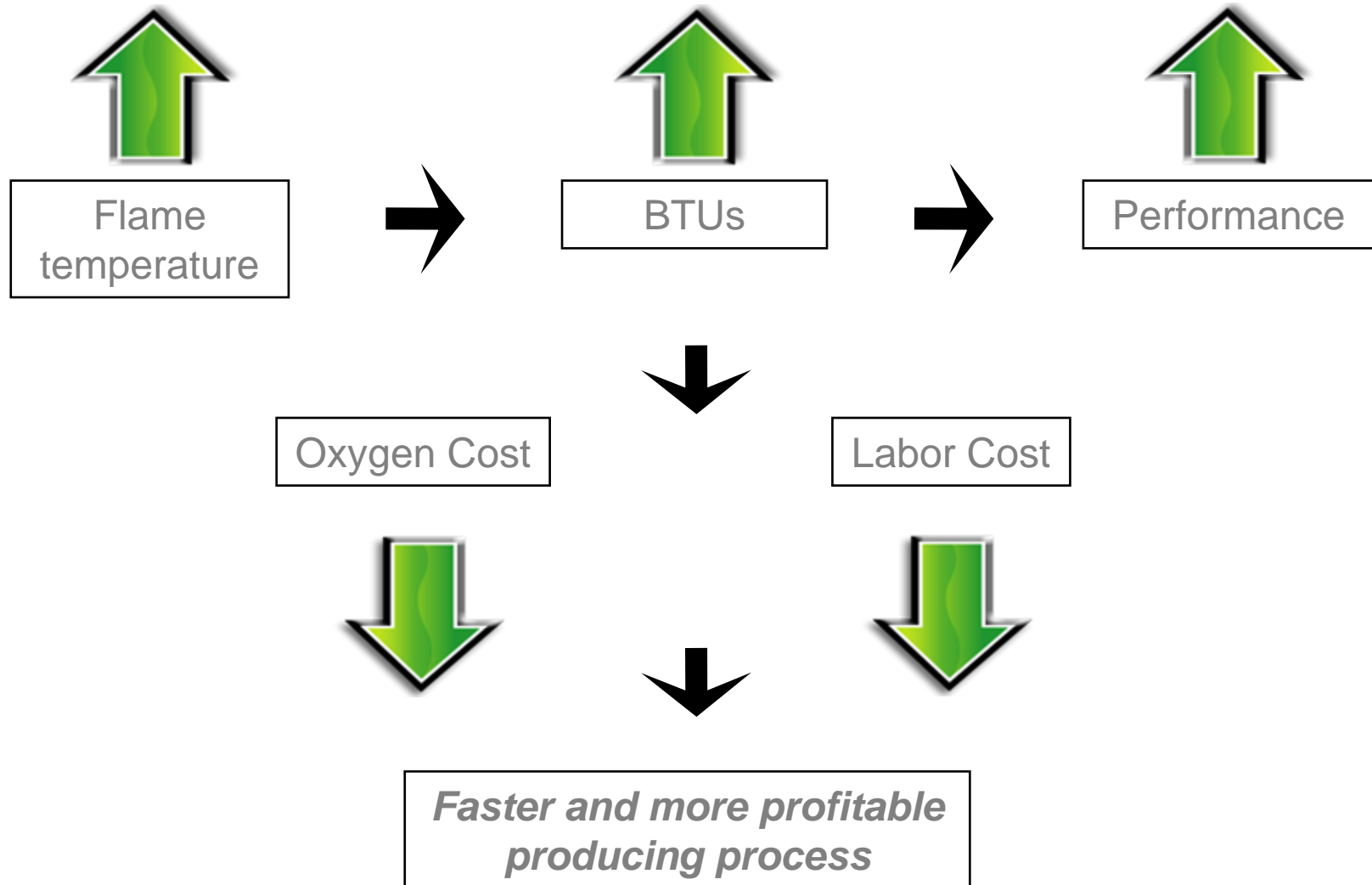
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ACETYLENE



3 cylinders = more than 200 kg

## Advantages of Chemtane 2 vs LPG (end product)



<p><i>Performance</i></p> <p><i>Safety</i></p> <p><i>Profitability</i></p> <p><i>Tailor-made Supply</i></p> <p><i>Easy to Handle</i></p>	 	<p><i>Fuel cost</i></p> <p><i>Handling and Storage</i></p> <p><i>Change out time</i></p> <p><i>Torch rebuilt</i></p> <p><i>Pollution</i></p>	 
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As a gas	Chemtane 2	Propane	Acetylene
Maximum flame temperature °C	(+) 3300	2.500	3.100
Effective heat content (BTUs/Kg) at 15,6 °C and 1 atm	54.517	47.698	46.991
M3 per kg of gas (or liquid)	0,55	0,54	-
Specific weight	2,07	2,01	1,17
Weight compared to air	1,6	1,52	0,9
Limits of flammability in air (%)	2,25 - 9,4	2,4 - 9,6	2,5 - 80
Toxicity	low	low	low
Reactivity to metals	low	low	cooper and silver alloys
Backfire tendency	low	low	high
Pressure	cylinder	cylinder	variable
<b>As a Liquid</b>			
Specific weight kg/l	0,51	0,5	-

*Field Construction Companies*

*Fabrication shops*

*Flame cutting shops*

*Scrap yards*

*Machine shops*

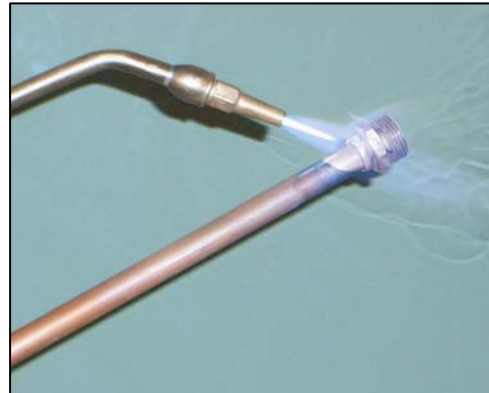
*Ship Yards*

*Mining*

*Jewelry Manufacturers*

*Glass Industry*

*Thermal Spray*



# GD

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*THANK YOU!*

