

HGX[®] FUEL GAS

A fuel gas that out produces acetylene for cutting and brazing at a fraction of the cost.

A 100 lbs./50 KG. cylinder of HGX Fuel Gas provides over 5 times the BTUs of a standard 5 cu. m³ Acetylene cylinder, while costing less. Here is what it means to you.

Finally there is a reliable fuel gas for cutting, heating, and brazing operations that will provide higher performance than acetylene, at a much lower price. HGX is the new standard of economy, performance, and safety for gases used in these metal-working processes. HGX is a superior high temperature, high heat content fuel gas with worldwide availability.

Faster preheat and piercing rates for cutting.

The piercing flame temperature of HGX Fuel Gas exceeds the flame temperature of most cutting fuels. It starts the cut as rapidly as acetylene and preheats and pierces faster than other combined cutting fuels at a lower cost.

Faster cutting travel speeds.

HGX Fuel Gas is capable of cutting travel speeds equal to acetylene while using lower quantities of oxygen than acetylene during cuts of up to 15" thick. Furthermore, LPG (Propane and Butane) and other types of fuel gases are not as fast in cutting steel yet, also use much greater quantities of oxygen for the same amount of production.

The highest combined inner and outer flame temperature plus the neutral flame temperature in oxygen provides the highest total

heating value in the industry. HGX Fuel Gas has greater practical value than any other cutting fuel.

Reduces slag formation and easier removal.

HGX Fuel Gas contains a balanced compound of metal organic material in a pure hydrocarbon solvent. The combustion catalyst of metal organic compounds inhibits the formation of molten slag, changing it into a material which is vaporized in the burning process and deposited in dry form.

The result is the smoothest surface after cutting.

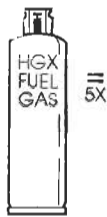
Faster heat transfer for brazing, heating, bending, cambering, straightening, hardening, and melting operations.

Whether you are using an HGX and Oxygen mixture or an HGX and air mixture, the superior heating value (neutral flame temperature and inner and outer flame temperature), that is the total heating value, allows for faster heat transfer to the metal. This means faster brazing, heating and metal working operations.

Safer and operator friendly.

Non-toxic, non-injurious to health. No torch backfire. Non-sensitive to shock with a low explosive range. Creates no dangerous by-products. No annoying fumes and easy to use with standard equipment for LPG fuel gases. Long life for two-piece, non-fouling recessed tip torches used for cutting.

The overall result is greater productivity.



=
5X



Approx. 5 times
BTU's and Ft.³/M³ for
same size cylinders



The beginning of a cut on a 6 foot (2 meter) long 1/2" (125 mm.) thick plate shows faster preheating and piercing using HGX Fuel Gas and oxygen versus L.P.G. and oxygen.



The end of the cut on the same plate, HGX using less oxygen has performed the cut faster, cleaner with less slag build-up than the Butane/Propane oxygen mixture.

A Comparison of Oxy/HGX Fuel Gas to Oxy/L.P.G. in a Singapore Shipyard.

The cutting of mild steel with L.P.G. (Butane/Propane) and oxygen was very slow because the steel was refusing to separate or clear off from the plate. The finished cut was poor quality with rough edges and unsightly slag at the bottom of the cut line. Secondary grinding would be necessary to prepare the cut for welding.

Cutting the same steel with HGX Fuel Gas and oxygen was as fast as acetylene and oxygen but used less oxygen than the latter mixture. The molten steel cleared easily off the plate with little slag or spatter. The cut was very smooth and the cut plate was ready for welding without any grinding, saving time and labor.

Compare HGX® Fuel Gas to other Fuel Gases and Acetylene for cutting and brazing.

Heating Values of Fuel Gases					
	HGX Fuel Gas	Propane/LPG	Propylene	Acetylene	MPS*
Neutral Flame Temp °F	5400	4700	5342	5700	5301
Neutral Flame Temp °C	2983	2594	2950	3149	2927
Heat Emission BTU/ft. ³					
Primary Flame	468	255	433	507	517
Secondary Flame	2144	2243	1938	963	1889
Total BTU/ft. ³	2612	2498	2371	1470	2406
Total Heat Value, BTU/lb.	21,600	21,600	21,600	21,500	21,600

Properties of Industrial Fuels					
	HGX Fuel Gas	Propane/LPG	Propylene	Acetylene	MPS*
Safety Data					
Shock Sensitivity	Stable	Stable	Stable	Unstable	Stable
Explosive Limits in Oxy. (%)	2.4 - 57	2.4 - 57	2.3 - 55	3.0 - 93	2.5 - 60
Explosive Limits in Air (%)	2.3 - 9.5	2.3 - 9.5	2.0 - 11	2.5 - 80	3.4 - 10.8
Max. Allowable Pressure	Cylinder	Cylinder	Cylinder	15 PSIG	Cylinder
Burn Vclty. in Oxy ft./sec.	13.5	12.2	15	22.7	15.4
Backfire Tendency	Low	Low	Low	High	Low
Toxicity	Low	Low	Low	Low	Low
Physical Properties					
Specific Gravity of Liquid	.510	.507	.522	--	.571
Lbs./Gal. Liquid	4.29	4.28	4.35	--	4.8
Ft. ² /Lb. Gas	8.66	8.66	9.7	14.6	9.06
Specific Gravity of Gas	1.52	1.52	1.49	.906	1.48
Vapor Prssr. (PSIG) at 70°	120	120	135	--	97
Boiling Range Temp. °F.	-50	-50	-54	-8.4	-36 to -4

*Methylacetylene Propadiene Stabilized also known as MAPP® Gas.



Automatic cutting of a 4" (10 cm.) bevel cut using an OXY/ HGX Fuel Gas mixture.



The completed cut. Notice the smoothness of the cut surface, the lack of slag and spatter. The piece is virtually ready for welding without further machining.

Cutting Performance Comparison of OXY/HGX Fuel Gas to OXY/ACETYLENE Fuel Gas.						
ACETYLENE CUTTING						
Tip Size	Metal Thickness	Press Oxygen	Press Fuel	CU.FT./HR Usage Oxygen	CU.FT./HR Usage Fuel	Speed (In/Min)
0	1/4	30	2	50	17	20
1	3/8	30	3	90	25	19
2	1/2-1	45	3	140	27	15
3	1-2	50	3	165	29	12
4	2-3	50	3	270	31	9
5	3-4	50	4	330	45	8
6	5-6	55	5	465	52	6
7	8-10	65	6	675	70	3
9	14	75	6	1220	75	3
10	15	85	6	1315	75	3
HGX FUEL GAS CUTTING						
0	1/4	20-45	2	25-30	7-8	15-24
1	3/8	35-40	2	45-70	10-12	11-24
2	1/2-1	35-55	2	57-82	12	10-17
3	1-2	35-55	3	113-190	12	7-12
4	2-3	35-75	3	235-335	16	5-11
5	3-4	35-75	4	310-430	16	5-11
6	5-6	25-60	4	450	18	7-9
7	8-10	35-60	5	500	20	4-7
8	8-10	35-60	6	550	24	3-4
9	14	35-60	7	700	26	4-5
10	15	40-60	7	800	28	3-4

On a recent field trip in the U.S.A. several pieces of mild steel of various grades and sizes were used in a test of HGX Fuel Gas for an owner of welding shop with automatic and manual welding equipment. Our field sales supervisor brought into the facility his OXY/HGX cylinders for the demonstration.

The shop owner was courteous but definitely a doubting Thomas. However, after using HGX Fuel Gas, he commented, "Your gas provides the smoothest surface after the cut is made, with less slag and spatter, than any cutting fuel I have ever used including acetylene."

While he is not a large volume user of cutting gas, he will now use HGX Fuel Gas and pay much less than if he used acetylene for the same operations.

**Compare the performance.
Compare the price.
You will choose HGX Fuel Gas.**



Energy Additives, Inc.
P.O. Box 1694
Battle Creek, MI 49016-1694
(888)-965-N-ER-G