Ultra Low Pressure Spraying Technology

A Revolution In Spraying

Why do we need a Low Energy Spraygun?

Paint and coating technology has advanced and outpaced current spraygun technology, where higher solids require higher pressures to atomise; and Nano Coatings need accurate film thickness delivery

We have addressed these issues with our Ultra Low Energy Solution.

Accreditation

CREST - Carried out the independent spraygun transfer efficiency test protocol, (Centre of Research Engineering Surface Technology DIT (Dublin Institute of Technology), Ireland.
(Test used EN 13966-1:2003 Test Protocol Method 2, where a test result of 85% T.E. was recorded)

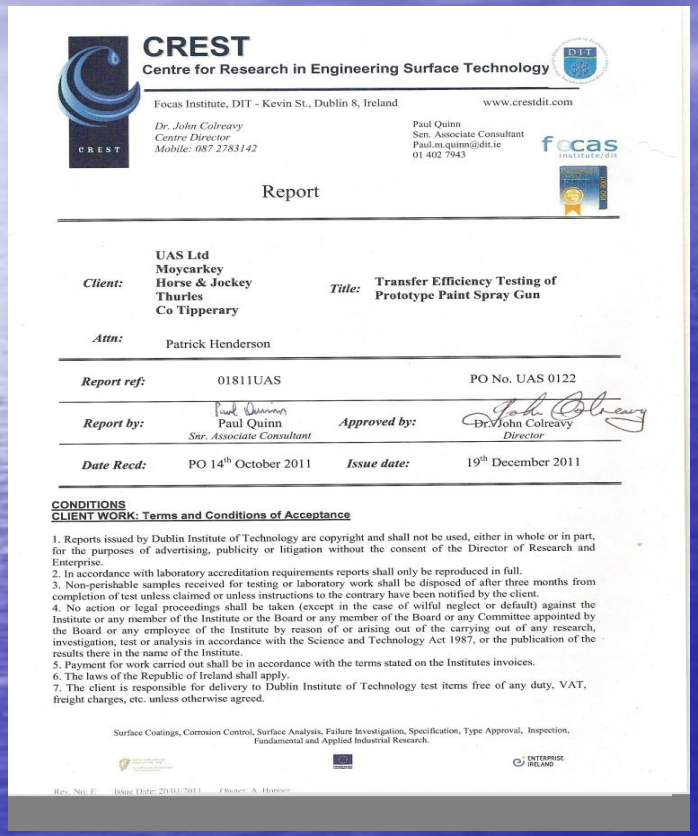
H.S.A. - Review of test result have termed the low energy spraygun as "An Engineering Control" by"
(Health & Safety Authority, Dublin, Ireland)

EPA - Review noted that it significantly reduced Hazardous Air Pollutants and Hazardous Waste (Environmental Protection Agency, Ireland)

Compliant - European legislation has changed, to incorporate "Best Available Technology" (BAT), as opposed to "Cost Effective Technology". The reference legislation is IPPC 96/61/EC and EPA Act 1992 to 2007.

These are highly significant areas of accreditation. The BAT accreditation leads to a degree of obligation as organisations should utilise the technology above other systems as it offers significant Health and Safety benefits.

THIRD PARTY TESTING



CREST
Centre for Research in Engineering Surface Technology

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Report

Client:	**UAS Ltd Moycarkey Horse & Jockey Thurles Co Tipperary**	***Title:***	**Transfer Efficiency Testing of Prototype Paint Spray Gun**
Attn:	Patrick Henderson		
Report ref:	01811UAS		PO No. UAS 0122
Report by:	Paul Quinn *Snr. Associate Consultant*	***Approved by:***	Dr. John Colreavy *Director*
Date Recd:	PO 14th October 2011	***Issue date:***	19th December 2011

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Surface Coatings, Corrosion Control, Surface Analysis, Failure Investigation, Specification, Type Approval, Inspection, Fundamental and Applied Industrial Research.

- We want our customers to be assured of the high standards of design and performance by third party testing.

- To validate all our claims we have used The Centre for Research in Engineering Technology (CREST) Dublin, Ireland to test our technology using EN 13966-1:2003 This normative testing meets prevailing "automotive quality requirements"

- The test results recorded **an 85% Transfer Efficiency at the required application rate and quality of finish.** **Most guns work at around 50% efficiency**

- We aim to provide low energy products to the highest standards in design and performance in preparation for any global test

Competitive Advantages of the Low Energy Spraygun

• Emissions Reduced Below EPA Limits	• Meets and Betters EPA BAT Notification	• Micro spray fan adjustment
• Transfer Efficiency 85%	• Safer Applications of Nano Paints	• Reduced Carbon Footprint
• Spray 70% Solids at 10psi	• Engineering Control Safety Factor	• 60% Waste Reduction
• Lower Electrical and Air Costs	• 6 - 9 Month use of Spraytip	• Limited Life time guarentee on none wearing parts
• Extraction Filter Longer Life	• Spray gun maintenance < 3 mins	• Aircap & Needle Suits all Spraytips

Product Life Cycle

- All components of the Ultra Low Energy Spraygun offer
- Measurable EIPRO
- Impacts ISO 14040 & ISO 14044 & PAS 2050
- Immediate impact on Carbon Footprint of user

An Ideal Solution for the application of ultra thin coatings and nano layers

Problem

- Exposure Risk
- Material cost
- Consistent film thickness
- Surface shape and contours
- Trained Operators

Solution

- Reduced airborne hazards
- Higher transfer efficiency
- Micro adjustment 10 to 600µm
- Adjustable Fan shape
- Operational Simplicity

Low Energy Spraygun Efficiency ,related to paint savings

Content % *	of paint per um	And Emmissi	Total paint requirement and volatile and solid emmissions (ml) v Transfer Efficiency 100%	95%	90%	85%	80%	70%	60%	50%	40%	30%
		Paint	1.000	1.053	1.111	1.176	1.250	1.429	1.667	2.000	2.500	3.330
		Volatiles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	1.000	Solids*	0.000	0.0526	0.111	0.176	0.250	0.429	0.667	1.000	1.500	2.330
		Paint	1.056	1.108	1.170	1.240	1.320	1.500	1.755	2.110	2.630	3.510
		Volatiles	0.0526	0.0554	0.0585	0.0619	0.0658	0.0752	0.0880	0.105	0.132	0.175
95	1.053	Solids*	0.000	0.0526	0.111	0.176	0.250	0.429	0.667	1.000	1.500	2.330
		Paint	1.110	1.170	1.240	1.310	1.390	1.590	1.852	2.220	2.780	3.700
		Volatiles	0.111	0.117	0.123	0.131	0.139	0.159	0.185	0.222	0.278	0.370
90	1.111	Solids*	0.000	0.0526	0.111	0.176	0.250	0.429	0.667	1.000	1.500	2.330
		Paint	1.180	1.240	1.310	1.380	1.470	1.680	1.960	2.350	2.940	3.920
		Volatiles	0.176	0.186	0.196	0.208	0.221	0.252	0.294	0.353	0.441	0.588
85	1.176	Solids*	0.000	0.0526	0.111	0.176	0.250	0.429	0.667	1.000	1.500	2.330
		Paint	1.250	1.320	1.390	1.470	1.560	1.790	2.080	2.500	3.130	4.170
		Volatiles	0.250	0.263	0.278	0.294	0.313	0.357	0.417	0.500	0.625	0.833
80	1.250	Solids*	0.000	0.0526	0.111	0.176	0.250	0.429	0.667	1.000	1.500	2.330
		Paint	1.330	1.400	1.480	1.570	1.670	1.900	2.220	2.670	3.330	4.440
		Volatiles	0.333	0.351	0.370	0.392	0.417	0.476	0.556	0.667	0.833	1.110
75	1.333	Solids*	0.000	0.0526	0.111	0.176	0.250	0.429	0.667	1.000	1.500	2.330
		Paint	1.430	1.500	1.580	1.680	1.790	2.041	2.381	2.860	3.570	4.760
		Volatiles	0.429	0.451	0.476	0.504	0.536	0.612	0.714	0.857	1.071	1.430
70	1.429	Solids*	0.000	0.0526	0.111	0.176	0.250	0.429	0.667	1.000	1.500	2.330
		Paint	1.540	1.620	1.710	1.810	1.930	2.220	2.570	3.080	3.850	5.130
		Volatiles	0.538	0.567	0.598	0.633	0.673	0.769	0.897	1.080	1.350	1.790
65	1.538	Solids*	0.000	0.0526	0.111	0.176	0.250	0.429	0.667	1.000	1.500	2.330
		Paint	1.670	1.750	1.850	1.960	2.080	2.380	2.780	3.330	4.170	5.560
		Volatiles	0.667	0.702	0.741	0.784	0.833	0.952	1.110	1.330	1.670	2.220
60	1.667	Solids*	0.000	0.0526	0.111	0.176	0.250	0.429	0.667	1.000	1.500	2.330
		Paint	2.000	2.110	2.220	2.350	2.500	2.860	3.330	4.000	5.000	6.670
		Volatiles	1.000	1.050	1.110	1.180	1.250	1.430	1.670	2.000	2.500	3.330
50	2.000	Solids*	0.000	0.0526	0.111	0.176	0.250	0.429	0.667	1.000	1.500	2.330
		Paint	2.500	2.630	2.780	2.940	3.130	3.570	4.170	5.000	6.250	8.330
		Volatiles	1.500	1.580	1.670	1.760	1.880	2.140	2.500	3.000	3.750	5.000
40	2.500	Solids*	0.000	0.0526	0.111	0.176	0.250	0.429	0.667	1.000	1.500	2.330
		Paint	3.330	3.510	3.700	3.920	4.170	4.760	5.560	6.670	8.830	11.100
		Volatiles	2.330	2.450	2.590	2.740	2.920	3.320	3.880	4.660	5.830	7.770
30	3.330	Solids*	0.000	0.0526	0.111	0.176	0.250	0.429	0.667	1.000	1.500	2.330

Note: Effective solids content is herein interpreted as initial solids content plus any paint components which react to form solids, e.g. epoxy resins, isocyanates and glycols/diglycols

Industry norm

EPA Requirement

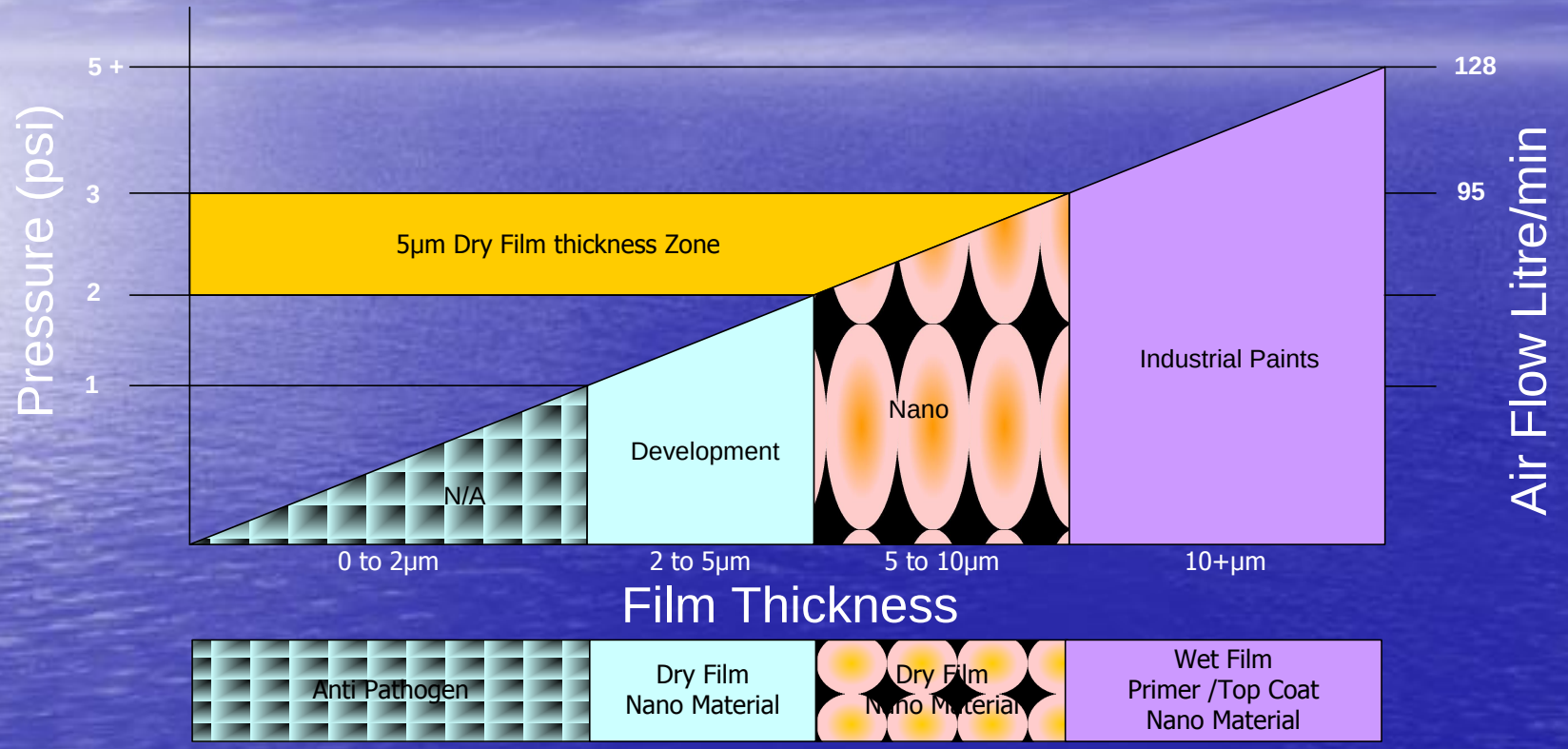
*ULP Performance

This Matrix Chart indicates the relationship between Pollutants and application Transfer Efficiency.

It also identifies the atmospheric solvent emission levels and the airborne particulates that surround the operator.

*ULP =Ultra Low Pressure

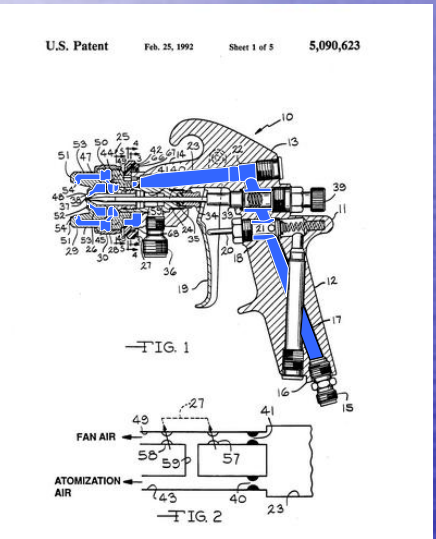
Application of Nano Material



Based on trials carried out with Nano particle water based coatings

The ULP Difference
It's all about the air!!!

The Low Energy Difference



An improved paint spray gun, as set forth in claim 10, wherein said high pressure air is at least 60 psig, wherein said first orifice drops said high pressure air to no more than 10 psig in said first passage when said valve means is closed to block fan air flow, and wherein said first and second orifices drop said high pressure air to no more than 10 psig when said valve means is open to provide

Current Technology

i. Convoluted air passage way

ii. Inefficient use of air

iii. Higher frictional and air turbulence through passage way

iv. Higher pressures needed to overcome item i.

?

We Apologize
Due to proprietary of design we can only show physical difference in the class

On-Going

Ultra Low Energy Application Systems

Utilising alternative low energy methods of delivery we have established a supply chain bringing the most up to date technologies together such as:

- Battery driven Air Compressor
- Battery -Low energy diaphragm pump running as low as 2 psi
- Unique filtration RPE mask
- Back pack fully portable delivery system

Ultra Low Energy Equipment

Air Compressor

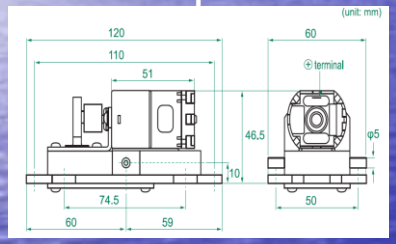
PSI:110

LMin: 55

Wgh:0.5kg

Battery 12V

Life Cycle 4 Hrs



Air Diagphram Pump

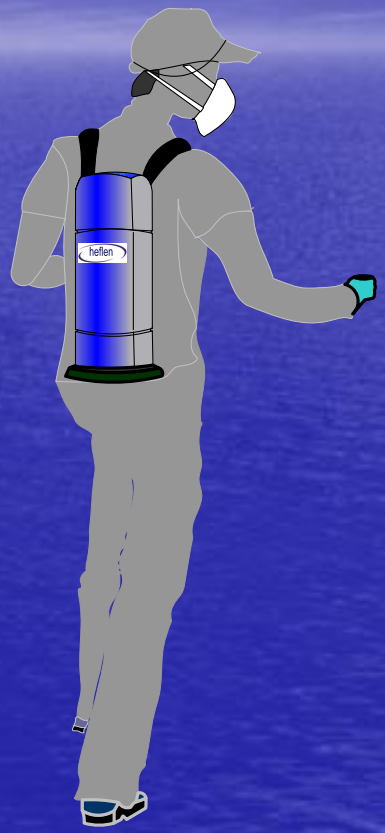
PSI: 4.5

LMin: 25

Wgh: 5 kg

Battery 12V

Life Cycle 4 Hrs



The USPs of the technology are..

- More paint is placed on to the target surface.
- Meets the highest standards in terms of auto finish.
- Massive reduction in particulate dispersion into the environment
- Significant reduction in maintenance costs of the spray gun.= thousands of € pa.
- One gun can be used for all paint types ,without the need for thinning.
- Exceptional variability of fan shape and size.
- Massive reduction in energy costs.
- Almost zero overspray.
- Highly portable. Mini compressors available or standard compressors can be used.
- Price matches with other professional spray guns
- Offers savings of approximately 50% when compared to standard spray systems

Our Mission

- We have designed a truly revolutionary spray gun; we now have to take it to the rest of the world.

"High Efficency Low Energy"