

The Results Are In!

ICE 32 is the best automotive A/C lubricant enhancer on the market today!

Tests proves that ICE32 will reduce the wear and extend the life of the compressor in an automotive a/c system. *The proof is in the numbers.* The American Society for Testing and Materials has published more that 9100 standard specifications tests, practices, guides and definitions for materials. Two tests used to qualify lubricants are:

ATSM D3233A - Falex Pin and VEE Block Test. This test demonstrates a lubricants ability to maintain a boundary film on a surface under extreme pressures. The maximum test point is 4500 LBF. The *higher* the number, the *better* the protection to the metal surface.

ASTM D4172 - Four-Ball Friction and Wear Tests. This tests demonstrates metal wear by measuring the scar surface on the Four Balls after a one hour test. The smaller the scar the smaller the amount of wear. It also demonstrates friction reduction by measuring the amount of torque required to rotate the stationary ball and the resulting vibration. The computerized test apparatus calculates the coefficient of friction. *Less friction and lower torque* usage relates to *lower operating temperature, less power used, less wear and longer life* of the compressor.

At ICE32, we thought the numbers are so important that not only did we test our product but we tested the competition as well. All the testing was done by a leading independent laboratory. The chart below shows the results of the testing on ICE32 and the six other leading products. The products were tested just as they come packaged. This shows the test results and overall performance of each product. The results - ICE32 outperformed every other product in every phase of the testing. Remember the Falex test the higher the number the better and in the Four Ball test the lower the number the better.

Product Test Description	ASTM D3233A	ASTM D4172 Wear Test			
	Falex Pin & Vee - Pounds of Force (lbf) @ Failure	4 Ball Scar Value (mm)	Torque Used	Coefficient of Friction	Ball Vibration
Base Additive - Neat (Out of Bottle)					
ICE32	4500>	.29 Scar	141 grams	0.0600	None
B G Frigi- Quiet	2516	.41 Scar	239 grams	0.1000	Med
FJC Extreme Cold	2584	.44 Scar	139 grams	0.0592	None
Clip Light Super Chill	1084	.73 Scar	274 grams	0.1167	Med
Quest Sub Zero	2984	.96 Scar	243 grams	0.1035	Med
Interdynamics Glacier Ice	2978	.67 Scar	241 grams	0.1016	Med
Interdynamics Artic Freeze	3151	.73 Scar	257 grams	0.1092	Med
Supercool Performance Enhancer	1393	.73 Scar	238 grams	0.1012	Med

ICE32 out performs all the competition in every test. These results provide us with important information about each product but how do they perform when added to the lubricant in an A/C system.

This time we ran the same series of tests using a base lube - ICE LT PAG 46. This lubricant has no additive package in it. All improvements are as a result of the products we added. Again we choose to test ICE 32 along with the six leading competitors. The first line shows the baseline test results - PAG just as it comes to the installer. The balance of the tests shows the results of adding 10% of each additive to the base PAG. The 10% figure was used as a standard measurement to make the results of the testing uniform. As you can see all but one additive improved the Falex test - remember the higher the number the better. In the Four Ball test, all but one improved the Scar Value. Looking at the results, it is clear that ICE32 outperformed all the others and greatly increased the performance of the basic PAG.

Product Test Description	ASTM D3233A	ASTM D4172 Wear Test			
	Falex Pin & Vee - Pounds of Force (lbf) @ Failure	4 Ball Scar Value (mm)	Torque Used	Coefficient of Friction	Ball Vibration
<i>Lubricant Mix - 90% Base Lube 10% Additive</i>					
Base Lube-					
ICE LT PAG 46- <i>No Additive package</i>	893	.61 Scar	300 grams	0.1250	Med
ICE LT PAG 46 + ICE 32	1980	.37 Scar	180 grams	0.0870	None
ICE LT PAG 46 + 10% B/G Frigi- Quiet	964	.55 Scar	275 grams	0.1170	Med
ICE LT PAG 46 + 10% FJC Extreme Cold	1077	.57 Scar	204 grams	0.0866	Med
ICE LT PAG 46 +					
10% Clip Light Super Chill	803	.58 Scar	305 grams	0.1300	Med
ICE LT PAG 46 + 10% Quest Sub-Zero	1359	.90 Scar	257 grams	0.1090	Med
ICE LT PAG 46 +					
10% Interdynamics Glacier Ice	1443	.48 Scar	238 grams	0.1044	Med
ICE LT PAG 46 +					
10% Interdynamics Artic Freeze	1508	.48 Scar	260 grams	0.1121	Med
ICE LT PAG 46 + 10% Supercool Enhancer	1128	.59 Scar	207 grams	0.0879	Med

When we tested a Premium PAG, we found that ICE32 was the ONLY enhancer that improved the basic PAG to performance levels above the Premium PAG. With all the others you would be ahead to just install a Premium PAG.

Product Test Description	ASTM D3233A	ASTM D4172 Wear Test			
	Falex Pin & Vee - Pounds of Force (lbf) @ Failure	4 Ball Scar Value (mm)	Torque Used	Coefficient of Friction	Ball Vibration
ICE LT PAG 46 + ICE 32	1980	.37 Scar	180 grams	0.0870	None
Four Seasons PAG 46- Premium -59007	1509	.44 Scar	240 grams	0.1100	Med

But wait, you always use Premium PAGs - would ICE32 improve them. We ran the same series of tests on Four Seasons PAG 46 (Part #59007) with and without ICE32. The results, ICE32 improves the overall performance.

Product Test Description	ASTM D3233A	ASTM D4172 Wear Test			
	Falex Pin & Vee - Pounds of Force (lbf) @ Failure	4 Ball Scar Value (mm)	Torque Used	Coefficient of Friction	Ball Vibration
*Four Seasons PAG 46- Premium -59007	1509	.44 Scar	240 grams	0.1100	Med
Four Seasons Pag 46 + ICE 32	2418	.35 Scar	168 grams	0.0700	None

*None of the additive mixes match the performance of the Four Seasons Premium - (fully formulated) Lubricant except ICE32

The Numbers Prove It!

Whether you are using basic PAG or Premium PAG, ICE32 will enhance the overall performance, extending the life of the compressor. For more information about the testing processes used in this report you can go to our web site: www.ice32.com or ask your sales representative for our test report.

For more technical information, testimonials and product information visit www.ice32.com