Molyslip Magic

The Way to Deal with Heat and Friction

The "moly" in Molyslip has always intrigued me because I wondered where the name could have sprung from. Looking at the Molyslip website it soon became clear that the "moly" bit came from Molybdenum, a silvery white, hard metal that is often recovered as a by product from copper and tungsten mining operations.

But Molyslip, the company and its products, have been around for years. In fact, I remember having a Molyslip sticker on my pushbike when I was a kid, I saw the same stickers on the race cars I watched. It was used as a valuable additive to the rather cruder engine oils available then, and my dad swore by its effectiveness when added to the engine of our Austin A50 - a car I remember as needing every bit of help it could get for its underpowered engine.

Recently, the closest molybdenum ever got to my consciousness was when a market trader told me that the set of pans I was about to buy had somehow been magically transformed into something special by the addition of "molybendium"(?) I took it with a pinch of salt, but in retrospect, he may have not been talking rubbish entirely because in many ways molybdenum is a magic metal.

It was discovered in 1782 and has a melting point of 2623degrees Celsius and a boiling point of 4639 degrees Celsius. It is used as an alloying agent to increase the toughness and hardenability of steel. But that is not the way that Molyslip uses the metal. Instead it is combined with sulphur to form Molybdenum Disulphide that is then compounded into various lubricating products. The toughness and heat resistance of the Molybdenum Disulphide, combined with the plating effect of the sulphur atoms form a microscopic coating between moving metal surfaces. This plated layer has a low friction coefficient of between .03 to .06. Enough to significantly reduce friction and also to provide a sort of "emergency" protection should the oil in which it is delivered run out for any reason.

It is pretty hard to test how effective Molyslip is in an engine without a full scientific laboratory set-up, but I was sent some samples of the metal-working lubricants to try out. These, it was reasonable to suppose, could be effectively tried and evaluated in the relatively simple environment of a metalworking workshop.

The first lubricant I tried was Molyslip MWF, a metalworking lubricant. It is bluey- grey green in colour and comes in a plastic squeezy bottle with a nozzle so that the lubricant can be applied at the point where it is needed.

My test was to try drill a variety of big holes in a cast iron face plate that I was trying to modify for another purpose. The cast iron was at least 10mm thick and I had tried drilling it with no lubricant, water based lubricant and then with Molyslip MWF lubricant. The first drilling test with no lubricant, despite being with a TiN covered drill produced a lot of heat, and would have produced smoke if I had pressed on. So far so obvious, because it is stupid to use no lubricant at all. The water-based lubricant worked a lot better, but did manage to run everywhere, so it does need a bath to contain it and better still, re-circulate it. A squirt of the MWF lubricant however showed a thick oily consistency that concentrated itself near the hole drilled and gathered the swarf into it. Despite the thick consistency, it did not appear to need to be constantly added to the drilling point. I was amazed that there was little or no heat produced on the metal near the drilling point and I was able to handle the workpiece with bare hands. The amount of time taken to drill the hole was also significantly reduced.

The second Molyslip product that I worked with was Molyslip MCC, a high performance metalworking compound that is supplied in a paste form in a tin. It is a sort of graphitey bluey-black colour and actually smells quite pleasant. The advantage of the paste is that it can be applied exactly where needed and of course it sticks a bit. As the material being ground, drilled etc heats up, the paste is carried onto the working surfaces where the Molybdenum Disulphide can start to do its work of plating the moving parts to reduce the friction caused. As with the MWF lubricant above, the swarf was quickly gathered up into the paste as the hole was drilled. This did not seem to compromise the ability of the paste to do its work and again the level of heat generated was minimal.

I guess that there must be all sorts of Health and Safety Regulations associated with cutting and grinding lubricants, as there are now even with engine and domestic lubricants. The information on the Molyslip products appeared to be to use normal safety standards when handling the products. I am assuming that this means that the users should wear gloves, like most mechanics do these days, and dispose of the used lubricants in an approved way. (I was also given full sets of the relevant Molyslip material safety data sheets).

For the small range of tasks I used these Molyslip lubricants for I was impressed with the way they performed. I can see that they might not always be the perfect lubricant, for example where one might want to wash the swarf away with a much less viscous product like a water-based one. (Molyslip also offer water-soluble cutting oils in their range). But, for many uses, where the swarf is collected by the lubricant and the ability to concentrate the lubricant in one place with only one or two applications is important, the Molyslip is a good solution. They are both pretty much standard products in engineering workshops throughout the land, and so have a proven track record.

Independent Review by Peter Brett

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