

PolyClear HIMEX



aquapurge

purging compounds
for the plastics industry

PolyClear HMEX

Poly Clear HM EX is not for the faint-hearted: it is for extreme polyolefin colour changes and carbon removal.

Over the last 19 years, Aquapurge has developed more than 140 purging products. This has culminated in Poly Clear HM EX – the most effective and easy-to-use polyolefin purging compound on the market.

As a hybrid purging compound (a mixture of granule, powder and liquid), Poly Clear HM EX combines polymer flow modification, foaming melt fracture and surfactant-based deposit removal. It can be fully melted and is not temperature - or time - sensitive. This has several benefits: no orifice is too small; no temperature changes are required to process; and no soak time is needed to aid cleaning. In fact, the faster you get it through the machine the better.

Poly Clear HM EX's performance is truly advanced: for colour changes, expect to use less than one-tenth of your normal amount of material – and to run it through the machine as fast as possible.

With such rapid colour changes, imagine the effect this can have on your stock levels, colour schedules, customer response times and regrind levels. Consider how your production schedule is influenced by long colour change or carbon specking times – and how costs could be reduced and sales and profits increased.

But Poly Clear HM EX is not just for those difficult 'once in a while' changes. It can have a huge effect on your OEE (Overall Equipment Effectiveness) – especially if tool changes can be made when you WANT instead of when you NEED (because of colour schedule or masterbatch shortage due to overuse).



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Blow Moulding

Poly Clear HM EX is a purging compound for extrusion blow moulding of polyolefins: HDPE, HMWPE, LDPE, PP and EVOH. During development, our primary aim was to deliver speed and ease of use – and we've succeeded. It gives fast colour change with the minimum of hassle.

Whether it's continuous extrusion or accumulator blow moulding, you'll only need about 10% of your usual quantity of virgin material. If you continuously extrusion blow mould 20 litre containers – and you use 500kg of virgin to change from blue to natural – you'll only need 50kg of Poly Clear HM EX.

That's it: one-tenth of the material, at the fastest safe speed, and the colour change is done. Now your machine is ready to make product for your customers.

But what about carbon/black specks/contamination? Again, Poly Clear HM EX is the answer – in two ways:

1) Monday morning start-up

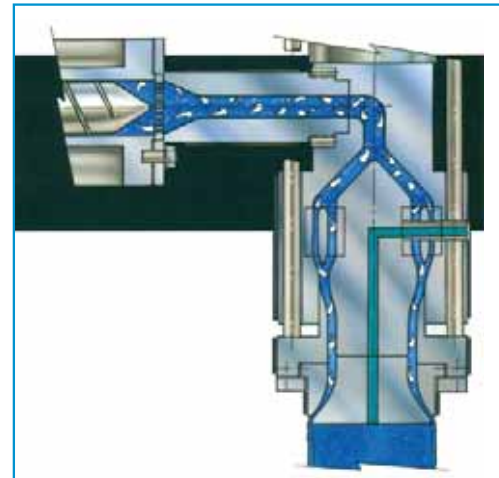
Poly Clear HM EX will usually clear loosened carbon just by using the colour change procedure. Simply purge Poly Clear HM EX through the machine until the carbon stops coming through.

2) Decarbonising - for a deeper clean

Go through the colour change procedure before your weekend shut down. Ensure that all colour has been removed, and Poly Clear HM EX is on the surface of the carbon. This will clear loosened carbon while you are purging; the residue will then loosen more carbon as the machine cools to ambient. All you need to do then is start with Poly Clear HM EX to remove any loosened carbon and the job's done.

Finally, what about catastrophic degradation – that is, the regrind layer on a multi-layer die running EVOH barrier and adhesive?

In this case, Poly Clear HM EX will need to be used with a specific scrubbing purging compound – such as our upgraded Barrel Blitz Universal (BBU). The BBU will clear a huge amount of the carbon by its scrubbing action. A final, brief purging with Poly Clear HM EX will clear any last remnants of BBU and carbon.



Pipe Extrusion

Pipe extrusion – with its demanding materials and even more demanding die designs and sizes – has always been an enigma to manufacturers of purging compound. Designing something that effectively and efficiently clears PE100 from a 600mm basket die is too much for your average R&D team. On top of that, PE80 is highly unlikely to clear out their purging compound.

But these problems are swept aside by Poly Clear HM EX, Aquapurge's latest development for extreme polyolefin changes. Poly Clear HM EX cut its teeth on PE100 changes, as this is our standard for colour change efficiency. The results were dramatic: Poly Clear HM EX was three times more effective than our previous product for colour changing injection moulded PE100 pipe fittings.

Poly Clear HM EX works with all types of polyolefins, including PE100, PE80, HDPE, MDPE, LDPE and PP.

What does this mean for you? Well, you'll now be able to change colour on your basket dies, spiral flow dies or hybrid spiral mandrel/basket dies without having to replace or strip down and clean them manually.

Sheet Extrusion

Whether it's solid sheet or cast film, Poly Clear HM EX 6 displays exceptional colour changing performance on polyolefins and TPOs. Its hybrid formulation is tuned to most extrusion grade materials: it distributes quickly to the edges of the die, but is removed efficiently once the colour is gone.

The induced turbulent flow and high melt fracture means that the channels employ maximum side wall velocity – dragging the colour out of the machine much faster than natural materials.

Poly Clear HM EX 6 has also been modified to work with melt and gear pumps. A reduced liquid level helps to banish screw slip, when screw speed varies with pressure.

Poly Clear HM EX 6 also removes degraded deposits. The colour change procedure ensures that Poly Clear HM EX 6 gets onto the surface of the carbon. A mixture of surfactant release and polymer adhesion boosts carbon loosening during shut-down. At start-up, a quick purge with Poly Clear HM EX 6 clears the loosened deposits.

The Fallacy of Regrind

In blow moulding, you can easily use up to 75% scrap (tops and tails) in your normal process (except, perhaps, for some multi-layer structures) with no detrimental effect on the product.

Many companies therefore view material as the key cost driver, and ignore the enhanced profits they could make by boosting efficiency. There is the assumption that because we can re-use the regrind, it is acceptable to make it – and higher process efficiency will have little or no effect on profit.

But consider this: you don't make money making regrind! In fact, the amount you lose is colossal.

Just imagine if – for a week – you made regrind (instead of containers) to sell. You get less than 50% of the virgin price for jazz regrind – and a tiny fraction of what you paid for masterbatch. You have all the usual fixed costs, but lose at least 50% on the material if you sell it.

But what if you didn't sell the regrind – but kept it for production the following week? Firstly, you could probably only use it to make black containers. And secondly, the second week's production of saleable products would have two weeks of production costs attributed to it. That would leave very little – if anything – to pay for non-productive costs such as labour and rent etc.

Now look at how much turnover and profit could be made if your machines made saleable product 100% of the time. Of course, it's impossible to achieve – it would mean no tool changes, breakdowns or colour changes. But it illustrates how huge the difference can be, especially when you realise that fixed costs are the same – whether you are running at 60% efficiency or 100%.

So what does this mean for regrind?

Regrind is GOOD when:

- It comes from the tops and tails of containers you are selling
- You are buying it (cheaply!) to reduce the cost of your black containers

But Regrind is BAD when:

- Your machine is making large amounts of it
- You are making it to store
- You are making it to sell

The answer, of course, is to make as little regrind as you can. By keeping your colour changes as quick as possible – with Poly Clear HM EX – you will run your system as close to 100% efficiency as you can, and reap the benefits.





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