Regulators and the compliance fallacy – buying 99% nicotine e-liquid from China

written by Clive Bates | 4 May 2016

99% nicotine e-liquid bought from China

How easy will it be to sidestep European Union and U.S. FDA regulation? To find out, I bought some high strength e-liquid from the internet. The problem is that bad regulation doesn't attract compliance, it attracts non-compliance.

The compliance fallacy

So I'd like to remind the frantic meddlers at the European Commission, EU member states, the FDA and over-zealous regulators everywhere of something I'll call the *compliance fallacy*. To put it bluntly, they should never assume that people (consumers and suppliers) will all comply with whatever regulation they impose.

Instead, they should view their regulatory intervention as applying a perturbation to a complex system – in this case, the complex system is the supply chain for low-risk alternatives to smoking. After their regulatory perturbation, the supply chain will reconfigure – with many people adopting workarounds because the market as the regulators conceive it no longer provides what consumers want. New suppliers outside the regulatory boundary can enter or grow by capitalising on the damage your regulation does to the existing supply chain. New business

models may form – for example nicotine liquids (regulated) will be sold separately to flavoured liquids (unregulated). Consumers will push the boundaries of legality.

Unfortunately for regulators and everyone else, that new supply chain might be more dangerous, less accountable, lower quality and less taxable than the system before they blundered in. Thier contribution will be the opposite of what they were trying to do – and what was supposed to be responsible will have been irresponsible. If you don't believe the compliance fallacy is real, look no further than Canada or Australia where nicotine liquids are *de facto* banned but easily accessible through a distorted supply chain.

Buying nicotine from the internet

To test how easy this is, I decided to make a trial purchase of 99% strength nicotine. The highest strengths ever used in commercial e-liquids are 10% (100mg/ml), with a typical maximum of 4.8% (48mg/ml) on sale and the new incoming EU directive limiting this to 2% (20mg/ml). So 99% nicotine liquid is very strong, toxic and dangerous. But if a consumer buys it and dilutes it, a little will go a long way (see below). So that regulators might reflect on their own folly, here is an account of my transaction.

I searched on the internet and soon found a number of sites providing this product and chose one at random. The website in question could have been located anywhere (though it is Chinese), it is attractively branded, has good English, accepts payments in $, £ or € through main credit cards and PayPal and offers a range of trusted shipping options like Fed-Ex and DHL.
The company's website says it only sells pure nicotine to

1. Businessmen
2. Vendors
3. Experts

To make sure I was one of these, I had to tick a box saying I am one of these three – so I did, and the transaction proceeded. Six days after ordering it arrived.

It was labelled as vegetable glycerine, which it isn't. But in a package like that, it could have been labelled as almost anything.

With a "*Certification for Safe Transport of Chemical Goods*" to accompany it. Reassuring!

How much nicotine is in this?

Short answer: about three months supply. (Maybe nine).

A typical vaper will consume about 100mg of nicotine per day (there is a large range and estimates vary, of course) so this tiny 10ml bottle containing about 10g of liquid or 10,000mg of nicotine would last about 100 days, diluted to whatever level the user preferred. Had I wished to, I could have bought a 250ml container. So that would be enough for about 7 person-years – and the basis for starting a cottage industry.

Update: Zvi Herzig points out "Farsalinos's survey of 19,000 e-cigarette forum users found an average of 12 mg/ml nicotine at 3 ml/day (table 2 here) = 36mg/day, so your tiny bottle might supply 9 months."

At what cost?

The costs for 99% nicotine from this supplier is very low.

- 10ml – $10.99
- 30ml – $24.99
- 100ml – $59.99
- 250ml – $109.00

Shipping for my 10ml bottle was an extra $20.99, but it doesn't rise that much for larger containers. So three months nicotine for $32 or 30 cents a day. I could afford to lose a few packages at Customs and still be better off. It is very cheap.

How might it be used?

A DIY home liquid mixer could take this nicotine feedstock, add it to their preferred mix of PG (about $10/litre from Amazon) and VG ($10/litre), which are widely available and not covered by TPD or FDA's Tobacco Control Act.

Popular diluents PG and VG

They can add whatever food flavours they like (at a few $ a time). Not covered by TPD or FDA's Tobacco Control Act, but regulated as foods and widely available.

Popular flavours

Mix the legally purchased diluents and flavours with the cross-border purchase on nicotine and the consumer has an abundance of cheap flavoured e-liquid – the situation before EU or FDA came blundering in.

New business models?

Undoubtedly. Innovation is not just in products, but also in business models that provide consumers with what they are looking for. Expect a lot more of this.

With both TPD and FDA regulation, it is almost certain that new business models will emerge. The regulated substance (nicotine) will be sold separately from the flavours and diluents – with mixing taking place post-sale, and possibly with containers designed for the purpose of mixing (e.g. interlocking caps). Nicotine liquids might be supplied by a few players able to meet the regulatory burdens or will be bought on the black or grey market as above. The flavoured liquids may be sold legally by existing e-cig companies without nicotine or the burdens of FDA or TPD regulation.

Is this better?

No, it's totally futile and wasteful. It achieves no free trade or public health objectives, protects no consumers and does nothing for safety. It is a large and clumsy perturbation of the supply chain causing it to reconfigure in a way that benefits no-one but is better than the market would be if there was 100%

compliance. But if you allow regulators to ignore the compliance fallacy, it's what you will get.

The hazards of such kitchen-based industrial processes are pretty obvious, but the economics are *very compelling*, especially if a regulator has closed down your options for strengths and flavours consumers like and made everything more expensive and boring. In fact, vaping enthusiasts could make quite a business out of it – become an illicit trader with a product you can make to order and sell to friends and neighbours.

Incompetent government (again)

Do the politicians, technocrats and advocates dreaming up elaborate regulations of e-liquids in North America or Europe ever consider what will happen to the actual supply chain? I mean the real-world supply chain rather than the imagined one they are specifying and hope everyone will comply with?

I enjoyed a recent collaboration with the New Nicotine Alliance to write to the UK government about 'unintended consequences' arising from poor policy. Here's what we said about black markets:

> *Observation 4: the emergence of black markets will indicate policy failure*
>
> *The emergence of significant black market trade in nicotine liquids, more DIY production, or changes in commercial or consumer behaviour to circumvent regulation is a sign of policy failure. This is a sign that consumers do not regard the policies as in their interests or that they regard policies that are ostensibly for the greater good or protection of others to be excessive and unjustified.*
>
> *Black markets can play a valuable role in helping people to avoid harms that arise from badly constructed policies and should not automatically be seen as a bad thing in themselves, but as a pragmatic consumer response to bad policy. In this sense black markets function as a kind of warning signal of policy failure and can relay useful information to policy makers considering reforms. Black markets come with a range of risks too – criminalisation of the supply chain, uncertain product quality and risks associated with changed consumer behaviours. But these should be understood as consequences of poor policies that create black markets, rather than black markets per se. We would far*

> *rather have a well functioning legitimate market, than see users turning to black markets or risky practices to retain their preferred alternative to smoking.*
>
> *Recommendation 4: UK government should monitor black market development and changing supply chain and consumer workarounds with a view to amending the underlying policy drivers of black market activity, if appropriate. The purpose should not be to crackdown on users protecting their health and welfare, or to extend the 'war on drugs' philosophy to nicotine, but to learn from the market reactions to distortions created by badly designed regulation.*

What will happen in practice?

I'm not a vaper and don't know the technology that well – is what I'm saying above realistic? Will something else happen? Who will be deterred, who will benefit? Let me have any insights in comments into how the market might reconfigure once EU TPD and/or FDA are applied.

Update: Interesting… White Cloud Vaping Co (U.S.) already commercialising DIY: Florida Company Gears Up to Supply the Underground "Vaping Prohibition"

Correction: the update above previously referred to *White Cloud E-cigarettes*. This is a completely different company and not involved in this approach. Apologies for the confusion.

News coverage: What the E-Cigarette Black Market Will Look Like if FDA Stomps Industry