

**Bingo! This is indelible ink**  
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**By Stephen Ng**

COMMENT Finally, the formula is out! Ladies and gentlemen, the 'indelible' ink is made of: Silver nitrate 1%, organic colour 60%, moisturiser 29% and solvent 10%.

NONE This, as declared by Minister in the Prime Minister's Department Shahidan Kassim (left), makes a perfect 100% indelible ink fiasco that rocked the nation and mocked our country's electoral process.

It has made me wonder why the Election Commission (EC) as a constitutional panel set up to safeguard the electoral process from being manipulated by either party, has not been that forthcoming with the truth or willing to use the right tool correctly to tighten the loopholes within the system.

Now, with the ink formula being told in parliament, there is finally light at the end of the tunnel.

Firstly, the minister should be censured for misleading the Dewan Rakyat by earlier stating that the ink did not have chemicals and only contained food colouring.

Minister Shahidan, please do not also make a mockery out of our august House by stating what is apparently untrue. Even a young teenager will be able to tell you that silver nitrate and moisturisers are chemicals; or else, would you also categorise them as food "colouring" that can be consumed?

But at least you score a point by telling the world the composition of the "indelible" ink. So, to be fair, now we know that in the indelible NONEink, there is one percent silver nitrate after all! I give the Election Commission chairperson Abdul Aziz Yusof (left in photo) a one-point score for stating the ink should not be more than 1% silver nitrate, but excuse me, I have to minus two points from his deputy, Wan Ahmad Wan Omar, for insisting that the ink had at least 4% silver nitrate.

Do not think that the rakyat are all stupid. We are in fact very disgusted with the way that ministers and the EC duo contradict each other, hoping that the public would buy their stories. There are no reasons why they should be playing the hide-and-seek, especially since the EC no longer enjoys public confidence after the indelible ink fiasco. If they have any sense of dignity left, they should immediately resign.

After over a thousand police reports being lodged after GE13, the issue is still being taken lightly? Why?

Silver nitrate!

According to public knowledge, industry standard for electoral inks contain anything between 10 to 18% silver nitrate solution, depending on the length of time the mark is required to be visible.

A one percent silver nitrate is as good as the 2% aqueous silver nitrate solution used for the treatment of Ophthalmia neonatorum (ON), or neonatal conjunctivitis. In other words, if a 2% silver nitrate solution cannot cause a stain on the eyes of newly-born babies, do not expect a 1% silver nitrate to do the magic that we all know about in the genuine indelible ink.

Hardly anything carcinogenic

There is, in fact, no basis for the ink manufacturer to reduce the silver nitrate to 1 percent, especially since there is hardly anything carcinogenic about silver nitrate.

As my chemistry professor at Monash University in Clayton wrote in his email reply to my query: "Silver nitrate has been spilt on hands of dozens of students before occupational health and safety (OHS) was tightened. The effects are unsightly stains that are hard to remove, but I have not heard of adverse health effects.

"Further AgNO<sub>3</sub> has a long history in removal of warts from hands and feet, again without adverse effects other than stains. Given the attention to heavy metals I would have thought adverse effects would be documented by now. If not in Material Safety Data Sheets, it should be okay."

I thought my knowledge of chemistry has gone to the rust, but a well-known chemistry professor confirmed my suspicions that silver nitrate, which can be purchased online at its 99.9% purity, will not harm human beings. Why then the fuss of keeping it at one percent? If the ink supplier has any knowledge about the indelible ink, who then instructed them to change the formulation to one percent? Why was only one percent used? Was it done by intention?

Moisturiser!

Instead of silver nitrate, which is reduced to a mere one percent, moisturiser content in the ink is ("Ooops!") 29 percent! I have yet to come across an ink which carries a moisturiser, but I have seen ink formula which uses a binder - never a

moisturiser! This is not about moisturising the finger to keep it give it that 'youthful glow at all times', but to make sure that an indelible stain is made on the skin to stop multiple voting.

With the electoral roll frauds that we have seen, this is one way to stop people from voting more than once. It is a quick, easy and cheap way of deterring people from multiple voting. But to use moisturiser in indelible ink, I have to ask, "Who gave that instruction?"

Moisturiser is essentially an emulsion preparation of oil and water, and sulfur lauryl sulfate (SLS) is used to stabilise the emulsion. For the sake of the ordinary folk, SLS is basically "soap" or detergent. It will only help remove stains. Oil, as you know, is repellent to any form of ink adhesion. If you have a moisturiser mixed into an ink, it doesn't take a rocket scientist to tell you why the ink would not adhere to the skin after it is being washed.

Eureka! That's why our friends in Sabah could remove the ink using grass to clean their index fingers within the same day which means the electoral process has a loophole, left there inadvertently or by design, I let you decide!

If there are health concerns over the use of silver nitrate which the EC chairperson kept harping on, Abdul Aziz should be more concerned about the use of moisturisers.

First, it has to do with the ingredients used in the moisturizer as a recent study had cited that 'the application of certain moisturisers increases the incidence of skin cancer in high-risk mice, but these animals were subjected to UVB radiation in high doses over a long period of time prior to application of moisturisers.'

There are also other factors to consider when using a moisturiser in the ink such as allergy, as some ingredients can cause irritation, rashes, and other allergic reactions. Besides that, the ink supplier had failed to include a most basic ingredient, which is the biocide since the moisturisers run the risk of being contaminated with bacteria that can cause disease.

Making us a big laughing stock

In the first place, using a moisturiser in the indelible ink is not only making us a big laughing stock, but totally unthinkable and unsound as far as formulation of inks is concerned.

Minister Shahidan Kassim could have scored a point if he had said 89 percent of the

ink is food colouring, but for revealing the 29 percent moisturiser content in the indelible ink, I shall remove 2 points from his score.

There is a reason why you cannot use food colouring alone for the indelible ink, but I shall wait for the right time to reveal this. However, any chemist would immediately pick up that, without the peroxides (in hair dye) or the silver nitrate in this case the indelible ink, the organic food colouring will not be lasting.

The trick in indelible ink is simply the silver nitrate, and it is public knowledge that an 18% solution silver nitrate is what you need for an effective stain. Anything more than that makes no difference to the stain longevity.

Solvent!

What is so secretive about the solvent used?

We all know that silver nitrate can dissolve in water or alcohol easily. If water is used, to manufacture 3 tonnes of the fiasco ink, 10 percent of this (i.e. 300kg) is nothing but water but did we pay RM6.9 million for this?

NONE Judging from the length of time it took for the ink to dry on the index finger, I doubt if alcohol was used, but even if it is used, there is no way that the ink could dry in three seconds as stated earlier by Wan Ahmad. With alcohol, it will take about 15-30 seconds to dry before it causes a smudge on the ballot paper.

For this reason, I believe Tindak Malaysia had, before the last general election, argued that the EC should follow the standard practice of dipping the index finger into the bottle after the voter had cast his votes.

One of the other reasons is because if you applied the ink at the second clerk's position, fewer eyes are on it after the slightest traces are being painted over. The polling agents who are supposed to be the watchdogs would not be able to determine if there was indeed foul play.

Whether this entire thing is done deliberately or not, I leave it to the people to judge especially since the evidence points to the fact that the EC had indeed committed misfeasance, at least in my opinion. They have flip-flopped with their own statements every other day. Could this be perhaps, signs of Alzheimer's Disease, and if that's being the case, they no longer hold such important positions, especially since they no longer enjoy public confidence.

Think about it! The results of the general election determines who will form the

next government, and as the EC, I would do whatever I can to safeguard the electoral process from all sorts of frauds. Forget about the indelible stain on the index finger that will remain for another seven days (it is safe), I would want a clean and fair election.

It is obvious to me after monitoring the development around the ink fiasco that there was a deliberate attempt to make the ink fail to perform, thus making the electoral process vulnerable to manipulation by multiple voters.

My proposal on indelible ink

Having the privilege of working in the research and development laboratories in all three areas - printing ink, paint and emulsion polymers - I share with you my philosophy behind my own 'backyard product' if I were to formulate the indelible ink.

I would put 18% silver nitrate to make sure that the ink is indelible. The rest of it, I would add perhaps a 15% organic dye depending on the colour and opacity that you want. I will also need about 0.5% biocide to make sure that the ink does not become contaminated with bacteria. I still have a room of 66.5% to play with.

Given the selling price is RM6.9 million of 'halal' money, I would be generous to put a dose of 0.5% fragrance to make the ink smell good. You can choose jasmine, lavender or rose. The rest of it, it's nothing but a combination of water and alcohol.

Doesn't this work better for an indelible ink?

I go back to the Wikipedia for a quick reference - and bingo!

It says: "Electoral stain typically contains a pigment for instant recognition, and silver nitrate which stains the skin on exposure to ultraviolet light, leaving a mark that is impossible to wash off and is only removed as external skin cells are replaced.

"Although normally water-based, electoral stains occasionally contain a solvent such as alcohol to allow for faster drying, especially when used with dipping bottles, which may also contain a biocide to ensure bacteria aren't transferred from voter to voter."

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