Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs

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Abstract
The validity of the NIK® narcotics test has been questioned by various authors and scrutinized in multiple court trials, yet validation studies for NIK® tests are not readily available either in the literature or from the manufacturer. Therefore, 17 samples including drugs of abuse, caffeine, sugar, and mixtures of drugs with sugar and caffeine were tested with the NIK® testing system. Detailed reports with instructions, observations, pictures of the results, and conclusions are provided in the supplemental materials. These reports serve as a useful tool for law enforcement officers who conduct drug testing in the field or in the correctional system.

Keywords: NIK test, abused narcotics, drugs, Marquis Reagent, Modified Scott Test, Marijuana, False Positives, Cocaine, Methamphetamine, cutting agents, law enforcement.

Introduction
The commercially available colorimetric test kit called NIK® test is used by law enforcement and in the correctional system, but has received criticism due to the possibility of false positives. Police officers use the test to determine probable cause for an arrest, but NIK® has been criticized in multiple instances when people were arrested based on false positives.

The NIK® test is commercially available from the Safariland Group, and is one type of colorimetric test that is sold as a presumptive color test for the identification of marijuana, cocaine, opiates and amphetamine-type compounds like methamphetamine, Ecstasy, Rohypnol, and Methylphenidate. Figure 1 shows the NIK® Master-Pac, a case containing NIK® Tests A, B, F, I, C, J, K, L, O, R, T, U and W. These are the commonly used tests for abused narcotics, and each box contains 10 tests, each in a plastic pouch. Depending on the test, each pouch contains 1 to 3 ampoules holding the chemicals used in the test. The ampoules are broken consecutively from left to right with intermittent shaking from ampoule to ampoule, and any color changes observed.

The NIK® test is accompanied by an IDENTIDRUG chart (Figure 1) for use with the polytesting system, as well as a training CD and a PowerPoint presentation Safariland. The Group also provides a test for law enforcement officers who can submit their answers to the Safariland Group and receive a scored accreditation as a NIK® user. Some narcotics are tested with a cascade of tests referred to as “polytesting” to narrow down the analyte identity.
Drugs tested with this system include opioids, amphetamines, cocaine, and more. As seen at the top center of the chart, the system is designed so Test A is always first, and then depending on either the color change or lack thereof, ensuing tests hone in on the analyte identity. As seen in Figure 2 for cocaine testing, Test A (Marquis test) should yield no color change, which then leads to the right on the IDENTIDRUG™ chart to Test G (Modified Scott test). Test G resulting in a biphasic mixture with the top layer pink and the bottom layer blue gives a positive presumptive test for cocaine. At this point, law enforcement would then send the sample to the crime lab for positive identification/confirmation using either GCMS or LCMS (Gas Chromatography/Mass Spectrometry or Liquid Chromatography/Mass Spectrometry).

The NIK® system does have stand-alone tests, as shown in the blue boxes at the bottom of the chart: Test E (Marijuana, Hashish, THC), Test M (Methaqualone), Test N (Talwin & Pentazocine), Test P (Propoxyphene), and Test Q (Ephedrine). All of the NIK® tests are designed for testing solids, but liquids may be tested by first absorbing the liquid onto white paper, drying, and then loading the paper into the test pouch.

The NIK® test was studied in our laboratories, and we determined that there are several advantages and disadvantages of the test. Positive aspects include ease of use and the quick turnaround time for the results. Negative points include the probability of using the incorrect sample size and the subjective nature of color changes that are interpreted by the operator.

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Based on our own experiments and interviews with local law enforcement, the most common mistakes in using these tests include user error (most common is using too much sample), subjectivity of result interpretation, and lack of proper training. The training CD from Safariland that contains a PowerPoint presentation is useful for understanding how to use the test, but it lacked detailed instructions, actual photos/images of the NIK® tests after testing drugs, and had no clear depiction of the color development when there were multiple phases in the pouch. Also, some pouches in the kit had directions listed on the front, while others did not so the CD had to be consulted. Unfortunately, while the NIK® test has impressive analytical power, the test is not accompanied with real photos of test results. The user has to rely on a color chart, which is subjective and not always representative of a real life color change. Therefore, we tested the kit, took photos and wrote detailed reports that can be used by anybody who uses the test, aiming to assist policemen or correctional officers when they are NIK® training and testing drugs on a crime scene.

Results and Discussion

On April 24, 2018, the Superior Court of California, County of Imperial, Case Number JCF 36904, dismissed the Grand Jury Indictment [Penalty Code Paragraph:995] and ordered the NIK® tests as inadmissible evidence to give it reasonable cause for indictment. The ruling was based on that fact that no validation studies can be found in the literature of the NIK® tests, especially with abused drugs. Furthermore, there is lack of evidence that NIK® tests are accepted by scientists and experts in the field as a valid drug tests due to the occurrence of false positives. Also, the NIK® test were carried by correctional officers who are not experts in the field of colorimetric testing, and they did not understand the meaning of a positive or negative results, especially since correctional officers use the IDENTIDRUG™ Chart or the color that is depicted on the test pouch.

Therefore, there is a need to present data and reports with actual photographs of the NIK® tests after testing with drug samples, cutting agents, and substances that may create false positives. This way correctional officer do not just rely on the subjective color interpretation of a color change in the pouch and comparing that with the color on the IDENTIDRUG™ Chart or the color that is depicted on the test pouch.

Table 1 shows the color observations of cocaine and cutting agents. Table 2 shows the description of incorrect results of sugar, cocaine, and cocaine mixed with sugar. Table 3 shows the controlled substances, and Table 4 lists cannabinoids and THC. All reports with detailed instructions, photographs, observations and notes, as well as conclusions are assembled in the supplemental information.

<table>
<thead>
<tr>
<th>Entry</th>
<th>Substance</th>
<th>NIK Test</th>
<th>RESULT</th>
<th>Colors / Observations</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Caffeine</td>
<td>A</td>
<td>No Result *</td>
<td>Colorless - No change</td>
<td>Go to NIK-G</td>
</tr>
<tr>
<td>2</td>
<td>Sugar</td>
<td>A</td>
<td>False **</td>
<td>Yellow</td>
<td>Go to NIK-B</td>
</tr>
<tr>
<td>3</td>
<td>Sugar</td>
<td>B</td>
<td>No Result *</td>
<td>Colorless - undissolved solids</td>
<td>No Yellow, Orange, or Green so no drugs</td>
</tr>
<tr>
<td>4</td>
<td>Sugar</td>
<td>G</td>
<td>No Result *</td>
<td>Colorless Layer</td>
<td>No Pink over Blue, No Cocaine present</td>
</tr>
<tr>
<td>5</td>
<td>Cocaine [Concentrated]</td>
<td>G</td>
<td>No Result *</td>
<td>Colorless Layer</td>
<td>No Pink over Blue, No Cocaine present</td>
</tr>
<tr>
<td>6</td>
<td>Cocaine [Regular]</td>
<td>A1</td>
<td>No Result *</td>
<td>Colorless - No change</td>
<td>Go to NIK-G</td>
</tr>
<tr>
<td>7</td>
<td>Cocaine [Dilute]</td>
<td>A2</td>
<td>No Result *</td>
<td>Colorless - No change</td>
<td>Go to NIK-G test</td>
</tr>
<tr>
<td>8</td>
<td>Cocaine [Regular]</td>
<td>G1</td>
<td>Failed **</td>
<td>Blue solid</td>
<td>Too much solid used</td>
</tr>
<tr>
<td>9</td>
<td>Cocaine [Dilute]</td>
<td>A3</td>
<td>No Result *</td>
<td>Colorless - No change</td>
<td>Go to NIK-G test</td>
</tr>
<tr>
<td>10</td>
<td>Cocaine [Dilute]</td>
<td>G2</td>
<td>Positive *</td>
<td>Pink layer over Blue layer</td>
<td>Affirms Cocaine</td>
</tr>
<tr>
<td>11</td>
<td>Cocaine + Caffeine</td>
<td>A</td>
<td>No Result *</td>
<td>Colorless - No change</td>
<td>Go to NIK-G test</td>
</tr>
<tr>
<td>12</td>
<td>Cocaine + Caffeine</td>
<td>G</td>
<td>Positive *</td>
<td>Pink layer over Blue layer</td>
<td>Affirms Cocaine, same result as Cocaine alone</td>
</tr>
<tr>
<td>13</td>
<td>Cocaine + Sugar</td>
<td>A</td>
<td>False **</td>
<td>Yellow</td>
<td>Go to NIK-B test</td>
</tr>
<tr>
<td>14</td>
<td>Cocaine + Sugar</td>
<td>B</td>
<td>No Result *</td>
<td>Colorless - No change</td>
<td>Negative for Opiates</td>
</tr>
<tr>
<td>15</td>
<td>Cocaine + Sugar</td>
<td>G</td>
<td>Positive *</td>
<td>Pink layer over Blue layer</td>
<td>Affirms Cocaine</td>
</tr>
</tbody>
</table>

Table 1: Summary of NIK® tests with cocaine and cutting agents
### Table 2: Description of incorrect results of Sugar, Cocaine, and Cocaine cut with Sugar.

<table>
<thead>
<tr>
<th>Entry</th>
<th>Substance</th>
<th>NIK Test</th>
<th>RESULT</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Sugar</td>
<td>A</td>
<td>False **</td>
<td>Sugar turns NIK-A yellow which on the NIK chart leads left to the NIK-B test. Then shown in Entry 4, NIK-B gives no color change and correctly indicates no drugs present. But Sugar turning NIK-A yellow is problematic for the NIK system when sugar is used as a Cocaine cutting agent in Entries 14 &amp; 15.</td>
</tr>
<tr>
<td>7</td>
<td>Cocaine [Concentrated]</td>
<td>G1</td>
<td>Failed **</td>
<td>Using too much cocaine “sponged” up all liquids from the ampoules so the test failed, giving a blue solid. Using too much material is the number one cause of user error, according to the NIK manufacturer.</td>
</tr>
<tr>
<td>14</td>
<td>Cocaine + Sugar</td>
<td>A</td>
<td>False **</td>
<td>Similar to Sugar alone in Entry 3, Sugar + Cocaine turns yellow with NIK-A that then leads to NIK-B test, not NIK-G. No color change for NIK-B in Entry 15 correctly shows no opiates, but neither NIK-A nor NIK-B affirm the cocaine present in the mixture. So the Polytesting system fails if Cocaine is cut with Sugar. Entry 16 NIK-G correctly indicates the present of Cocaine, demonstrating that sugar as a cutting agent does not affect the outcome of the NIK-G Cocaine test.</td>
</tr>
</tbody>
</table>

### Table 3: Table of Controlled Substances/Medications

<table>
<thead>
<tr>
<th>Entry</th>
<th>Substance</th>
<th>NIK Test</th>
<th>RESULT</th>
<th>Colors / Observations</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>d-Amphetamine Sulfate</td>
<td>A</td>
<td>Positive *</td>
<td>Orange darkens to Brown</td>
<td>Indicates Amphetamines - go to NIK-U</td>
</tr>
<tr>
<td>18</td>
<td>U</td>
<td>Positive *</td>
<td>Pink darkens to Violet</td>
<td>Affirms Amphetamines</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Fentanyl Citrate</td>
<td>A</td>
<td>Positive *</td>
<td>Orange darkens to Brown</td>
<td>Indicates Amphetamines - go to NIK-U</td>
</tr>
<tr>
<td>20</td>
<td>U</td>
<td>Positive *</td>
<td>Red darkens to Violet</td>
<td>Affirms Amphetamines</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Hydrocodone Bitartrate</td>
<td>A</td>
<td>Positive *</td>
<td>Slow Pink darkens to Violet</td>
<td>Affirms Opiates</td>
</tr>
<tr>
<td>22</td>
<td>U</td>
<td>Positive *</td>
<td>Red darkens to Violet</td>
<td>Affirms Opiates, Go to NIK-K or L</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>K</td>
<td>Negative **</td>
<td>Green to dark Green</td>
<td>Not Blue/Heroin or Violet/Morphine</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>L</td>
<td>Negative **</td>
<td>Colorless to Light Violet</td>
<td>Not Green/Heroin</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Hydromorphone-HCl [Regular]</td>
<td>A1</td>
<td>Positive *</td>
<td>Pink darkens to dark Violet</td>
<td>Affirms Opiates</td>
</tr>
<tr>
<td>26</td>
<td>[Very Dilute]</td>
<td>A2</td>
<td>Positive *</td>
<td>Yellow to Pink darkens to Violet</td>
<td>Affirms Opiates</td>
</tr>
<tr>
<td>27</td>
<td>U</td>
<td>Positive *</td>
<td>Red darkens to Violet</td>
<td>Affirms Opiates, Go to NIK-K or L</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>K</td>
<td>Negative **</td>
<td>Green darkens to Brown</td>
<td>Not Blue/Heroin or Violet/Morphine</td>
<td></td>
</tr>
</tbody>
</table>

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Table 3: Table of Controlled Substances/Medications

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<th>Substance</th>
<th>NIK Test</th>
<th>RESULT</th>
<th>Colors / Observations</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>Levacetylmethadol (LAAAM)</td>
<td>A</td>
<td>Positive*</td>
<td>Yellow to Green</td>
<td>Green Affirms Heroin</td>
</tr>
<tr>
<td>30</td>
<td>[Methadone Mimic]</td>
<td></td>
<td></td>
<td>Orange darkens to Brown</td>
<td>Indicates Amphetamines - go to NIK-U</td>
</tr>
<tr>
<td>31</td>
<td>MDMA (Ecstasy)</td>
<td>A</td>
<td>Positive*</td>
<td>Red darkens to deep Violet</td>
<td>Affirms Amphetamines</td>
</tr>
<tr>
<td>32</td>
<td></td>
<td>U</td>
<td>Positive*</td>
<td>Pink darkens to Violet</td>
<td>Indicates Opiates - go to NIK-U</td>
</tr>
<tr>
<td>33</td>
<td></td>
<td>U</td>
<td>Positive*</td>
<td>Violet to deep Violet</td>
<td>Affirms Amphetamines</td>
</tr>
<tr>
<td>34</td>
<td></td>
<td>A</td>
<td>Positive*</td>
<td>Orange darkens to Brown</td>
<td>Indicates Amphetamines - go to NIK-U</td>
</tr>
<tr>
<td>35</td>
<td></td>
<td>U</td>
<td>Positive*</td>
<td>Deep Blue</td>
<td>Affirms Amphetamines</td>
</tr>
<tr>
<td>36</td>
<td>Methylphenidate (Ritalin)</td>
<td>A1</td>
<td>No Result</td>
<td>Colorless - No change</td>
<td>Go to NIK-G</td>
</tr>
<tr>
<td>37</td>
<td></td>
<td>G</td>
<td>No Result</td>
<td>Pink over Colorless Layer</td>
<td>Negative for Cocaine, Go to NIK-I</td>
</tr>
<tr>
<td>38</td>
<td></td>
<td>I</td>
<td>No Result</td>
<td>No Color, no Orange or Violet</td>
<td>Go to NIK-W</td>
</tr>
<tr>
<td>39</td>
<td></td>
<td>W</td>
<td>Inconclusive</td>
<td>Yellow but No Blue or Olive Green</td>
<td>Does not look Olive; Go to NIK-J</td>
</tr>
<tr>
<td>40</td>
<td></td>
<td>J</td>
<td>Negative*</td>
<td>Pink but No Blue</td>
<td>Negative for PCP; Go to NIK-R</td>
</tr>
<tr>
<td>41</td>
<td></td>
<td>R</td>
<td>Inconclusive</td>
<td>Light Pink to Pink</td>
<td>No Violet so No Valium; Go to NIK-Q</td>
</tr>
<tr>
<td>42</td>
<td></td>
<td>O</td>
<td>Inconclusive</td>
<td>Yellow but no Green</td>
<td>No Green so No GHB</td>
</tr>
<tr>
<td>43</td>
<td>Thebaine (Paramorphine)</td>
<td>A1</td>
<td>Negative*</td>
<td>Dark Orange, No Violet or Brown</td>
<td>Orange without Brown, Go to NIK-B</td>
</tr>
<tr>
<td>44</td>
<td></td>
<td>B</td>
<td>Negative**</td>
<td>Faint Yellow, no Green or Orange</td>
<td>Negative for Heroin, Codeine, or Morphine</td>
</tr>
<tr>
<td>45</td>
<td></td>
<td>K</td>
<td>Negative**</td>
<td>Dark Brown, No Violet</td>
<td>Not Blue/Heroin or Violet/Morphine</td>
</tr>
<tr>
<td>46</td>
<td></td>
<td>L</td>
<td>Negative**</td>
<td>Dark Brown, No Green</td>
<td>Not Green/Heroin</td>
</tr>
</tbody>
</table>

Table 4: Table of Marijuana and Cannabinoids

<table>
<thead>
<tr>
<th>Entry</th>
<th>Substance</th>
<th>NIK Test</th>
<th>RESULT</th>
<th>Colors / Observations</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>47</td>
<td>Tetrahydrocannabinol (THC)</td>
<td>A</td>
<td>Failed**</td>
<td>Pale Yellow</td>
<td>Turns yellow-would lead to NIK-B</td>
</tr>
<tr>
<td>48</td>
<td>Cannabis - Local Police</td>
<td>E</td>
<td>Positive*</td>
<td>Gray over Pink</td>
<td>Positive for Cannabinoids</td>
</tr>
<tr>
<td>49</td>
<td></td>
<td>E1</td>
<td>Failed**</td>
<td>Black over Dark Gray</td>
<td>Way too concentrated</td>
</tr>
<tr>
<td>50</td>
<td>Cannabis - Sangre AgroTech</td>
<td>E2</td>
<td>Positive*</td>
<td>Lavender over Pink</td>
<td>Affirms plant is Marijuana</td>
</tr>
<tr>
<td>51</td>
<td>(LaVeta, CO)</td>
<td>E</td>
<td>Positive*</td>
<td>Lavender over Pink</td>
<td>Affirms plant is Marijuana</td>
</tr>
</tbody>
</table>
Conclusion
This report attempts to provide users of the NIK® test with real detailed reports and real images so that a better presumptive interpretation can be made with regards to positive or negative test results, giving users a true comparison of the results in the field with an actual picture instead of a color chart that is provided with the NIK® test.

Acknowledgement
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References
NIK Test A - General Screening

MODEL: 800-6071 SKU: 1006149 PART: 800-6071
NIK-G SDS http://sds.chemtel.net/webclients/safariland/archive/NIK%206413%20Cocaine%20and%20Free%20Base%20MSDS.pdf

Name: Marquis Reagent, 1 Ampoule
Contents:
Ampoule 1 Con. Sulfuric Acid, 95%
Ampoule 2 40% Aq. Formaldehyde, 5%
Marquis Reagent: This reagent presumptively identifies Opium Alkaloids, Heroin and Amphetamine type compounds and as a general screening agent for other drugs.
Description: A rapidly developing purple or blue-violet color indicates Opium alkaloids (Morphine or Codeine) or Heroin. An immediate orange color rapidly turning to a brown color indicates Amphetamine-type compounds. Refer to Polytesting Chart for other color results.

Procedure: NIK-A.v1 (by Dave Symonsbergen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side of the pouch facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-A Caffeine SIAL 17JA03
Date: 10/5/2017
Person: Dave Symonsbergen
Experiment: 17JA03
Substance: Caffeine
Source Sigma-Aldrich
Item Number C0750-100g
Lot Number 099K1441
Sample Class: Powder
Sample Color: White
Qty to Test: Analytical spatula

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Colorless</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
<td>N/A</td>
</tr>
<tr>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>45</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>60</td>
<td>Colorless</td>
<td>60</td>
</tr>
<tr>
<td>75</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>90</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>120</td>
<td>Colorless</td>
<td>120</td>
</tr>
<tr>
<td>180</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>240</td>
<td>240</td>
<td>240</td>
</tr>
<tr>
<td>300</td>
<td>Colorless</td>
<td>300</td>
</tr>
</tbody>
</table>

Conclusion: No color change after 5 minutes which indicates no narcotics present so NIK-A is correct.
NIK Test G - for Cocaine

MODEL: 800-6077 SKU: 1006155 PART: 800-6077
Name: Modified Scott Reagent, 3 Ampoules

Contents:

| Ampoule 1 | cobalt thiocyanate, 1% |
| Ampoule 1 | glycerol, 40-60% |
| Ampoule 1 | boric acid, 1% |
| Ampoule 2 | tartaric acid, 1% |
| Ampoule 2 | hydrochloric acid, 90% |
| Ampoule 2 | chloroform, >90% |

Modified Scott Reagent - A test for Cocaine, Crack, or Free Base.

Description: Blue or pink with blue speckles after breaking the first Ampoule, a blue flash followed by a pink result after breaking the second Ampoule, and a pink layer over a blue layer after breaking the third Ampoule. NOTE: All color changes are necessary for a presumptive positive test.

Procedure: NIK-G.v1 (by Dave Symonsbergen on 10/05/17)

1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Repeat Steps 5-8 with Ampoule 2, and then with Ampoule 3.
10. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
11. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-G Caffeine SIAL 17JA04

Date: 10/5/2017
Person: Dave Symonsbegen
Experiment: 17JA04
Substance: Caffeine
Source: Sigma-Adrich
Item Number: wC0750-100g
Lot Number: 099K1441
Sample Class: Powder
Sample Color: White
Qty to Test: Analytical spatula

| AMPOULE 1 | AMPOULE 2 | AMPOULE 3 |
| COLOR & NOTES | COLOR & NOTES | COLOR & NOTES |
| TIME (Sec) | COLOR & NOTES | TIME (Sec) | COLOR & NOTES |
| 0 | Colorless | 0 | PINK |
| 15 | Colorless | 15 | Cloudy/Pink |
| 30 | Cloudy/Pink | 30 | Pink over colorless |
| 45 | Pink over colorless | 45 | Pink over colorless |
| 60 | Colorless | 60 | PINK |
| 75 | PINK | 75 | Pink over colorless |
| 90 | Cloudy/Pink | 90 | |
| 120 | Colorless | 120 | PINK |
| 180 | Colorless | 180 | PINK |
| 240 | Colorless | 240 | PINK |
| 300 | Colorless | 300 | PINK |

Conclusion: Ampoule 1 gave no blue color solution and no blue solid specks. Ampoule 2 turned pink, and then Ampoule 3 gave pink over colorless indicating a negative test for cocaine, which is correct.

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
NIK Test A - General Screening

MODEL: 800-6071 SKU: 1006149 PART: 800-6071
NIK-G SDS http://sds.chemtel.net/webclients/safariland/archive/NIK%206413%20Cocaine%20and%20Free%20Base%20MSDS.pdf

Name: Marquis Reagent, 1 Ampoule

Contents:
- Ampoule 1 Con. Sulfuric Acid, 95%
- Ampoule 2 40% Aq. Formaldehyde, 5%

Marquis Reagent - This reagent presumptively identifies Opium Alkaloids, Heroin and Amphetamine type compounds and as a general screening agent for other drugs

Description - A rapidly developing purple or blue-violet color indicates Opium alkaloids (Morphine or Codeine) or Heroin. An immediate orange color rapidly turning to a brown color indicates Amphetamine-type compounds. Refer to Polytesting Chart for other color results.

Procedure: NIK-G.v1 (by Dave Symonsbegen on 10/05/17)

1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Repeat Steps 5-8 with Ampoule 2, and then with Ampoule 3.
10. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
11. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

AMPOULE 1 CONTENTS:
- Ampoule 1 Con. Sulfuric Acid, 95%
- Ampoule 2 40% Aq. Formaldehyde, 5%

AMPOULE 2 CONTENTS:
- Ampoule 1 Con. Sulfuric Acid, 95%
- Ampoule 2 40% Aq. Formaldehyde, 5%

AMPOULE 3 CONTENTS:
- Ampoule 1 Con. Sulfuric Acid, 95%
- Ampoule 2 40% Aq. Formaldehyde, 5%

Conclusion: Ampoule 1 gave no blue color solution and no blue solid specks. Ampoule 2 turned pink, and then Ampoule 3 gave pink over colorless indicating a negative test for cocaine, which is correct.
**NIK Test B - Nitric Acid Reagent, General Screening Drug Test**

**Contents:**
- **Ampoule 1** Nitric Acid, 50-100%

**Nitric Acid Reagent** - Secondary screening test for the confirmation of Opiates (Morphine, Heroin, or Codeine) and Amphetamine-type compounds, as well as a general screening test for other drugs

**Description** - A yellow Color slowly changing to light green indicates Heroin. An orange color changing very rapidly to red and then slowly to yellow indicates Morphine. An orange color changing slowly to yellow indicates Codeine

**Procedure: NIK-B.v1** (by Dave Symonsbegen on 11/06/17)

1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

**Experiment: NIK-B Sugar 17JA06**

**Date:** 10/5/2017
**Person:** Dave Symonsbegen
**Experiment:** 17JA06
**Substance:** Sugar Granulated
**Source** Wallys
**Item Number** N/A
**Lot Number** N/A
**Sample Class:** Crystalline Solid
**Sample Color:** White

<table>
<thead>
<tr>
<th>TIME (Sec)</th>
<th>AMPouLE 1 COLOR &amp; NOTES</th>
<th>AMPouLE 2 TIME (Sec)</th>
<th>AMPouLE 2 COLOR &amp; NOTES</th>
<th>AMPouLE 3 TIME (Sec)</th>
<th>AMPouLE 3 COLOR &amp; NOTES</th>
</tr>
</thead>
<tbody>
<tr>
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<td>240</td>
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<td>240</td>
<td></td>
</tr>
<tr>
<td>300</td>
<td>No color, sugar undissolved</td>
<td>300</td>
<td>No color, sugar undissolved</td>
<td>300</td>
<td></td>
</tr>
</tbody>
</table>

**Conclusion:** Ampoule 1 gave no blue color solution and no blue solid specks. Ampoule 2 turned pink, and then Ampoule 3 gave pink over colorless indicating a negative test for cocaine, which is correct.

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
**NIK Test B - Nitric Acid Reagent, General Screening Drug Test**

<table>
<thead>
<tr>
<th>Ampoule 1</th>
<th>Cobalt Thiocyanate, 1%</th>
<th>Ampoule 1</th>
<th>Glycerol, 40-60%</th>
<th>Ampoule 1</th>
<th>Boric Acid, 1%</th>
</tr>
</thead>
</table>

**Modified Scott Reagent - A test for Cocaine, Crack, or Free Base.**

Description - Blue or pink with blue speckles after breaking the first Ampoule, a blue flash followed by a pink result after breaking the second Ampoule, and a pink layer over a blue layer after breaking the third Ampoule. NOTE: All color changes are necessary for a presumptive positive test.

**Procedure: NIK-G.v1** (by Dave Symonsbergen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

**Experiment:** Sugar 17JA07
**Date:** 10/5/2017
**Person:** Dave Symonsbergen
**Experiment:** 17JA07
**Substance:** Sugar Granulated
**Source:** Wallys
**Item Number:** N/A
**Lot Number:** N/A
**Sample Class:** Crystalline Solid
**Sample Color:** White
**Qty to Test:** Analytical spatula

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Color stays pink, no blue speckles, sugar undissolved</td>
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</tr>
<tr>
<td>15</td>
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<tr>
<td>30</td>
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<td>240</td>
</tr>
<tr>
<td>300</td>
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<td>300</td>
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</tbody>
</table>

**Conclusion:** No blue forms and end result is pink over colorless so sugar gives presumptive negative result for cocaine.
NIK Test A - General Screening

Marquis Reagent - This reagent presumptively identifies Opium Alkaloids, Heroin, and Amphetamine-type compounds, and as a general screening agent for other drugs.

Description - A rapidly developing purple or blue-violet color indicates Opium alkaloids (Morphine or Codeine) or Heroin. An immediate orange color rapidly turning to a brown color indicates Amphetamine-type compounds. Refer to Polytesting Chart for other color results.

Procedure: NIK-B.v1 (by Dave Symonsbegen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-A Cocaine SIAL 17KA23

Date: 11/6/2017
Person: Dave Symonsbegen
Substance: Cocaine Hydrochloride, >97.5%
Source: Sigma-Aldrich
Item Number: C5776-1g
Lot Number: SLBC9840V
Sample Class: Powder
Sample Color: White
Qty to Test: Spatula / High Quantity = Overload

<table>
<thead>
<tr>
<th>TIME (Sec)</th>
<th>AMPoule 1</th>
<th>AMPoule 2</th>
<th>AMPoule 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Colorless</td>
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<tr>
<td>300</td>
<td>300</td>
<td>300</td>
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</tr>
</tbody>
</table>

Conclusion: No color change was observed after 5 minutes, which on the Color Chart leads to NIK-G: see [17KA24]
NIK Test G - for Cocaine

Modified Scott Reagent - A test for Cocaine, Crack, or Free Base.
Description: Blue or pink with blue speckles after breaking the first Ampoule, a blue flash followed by a pink result after breaking the second Ampoule, and a pink layer over a blue layer after breaking the third Ampoule. NOTE: All color changes are necessary for a presumptive positive test.

Procedure: NIK-G.v1 (by Dave Symonsbergen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.
11. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Contents:
- Ampoule 1: Cobalt Thiocyanate, 1%
- Ampoule 1: Glycerol, 40-60%
- Ampoule 1: Boric Acid, 1%
- Ampoule 2: Tartaric Acid, 1%
- Ampoule 2: Hydrochloric Acid, 90%
- Ampoule 2: Chloroform, >90%
- Ampoule 3: Tartaric Acid, 1%

Experiment: NIK-G Cocaine HCl SIAL 17KA24
Date: 10/5/2017
Person: Dave Symonsbergen
Experiment: 17KA24
Substance: Cocaine Hydrochloride, >97.5%
Source: Sigma-Aldrich
Item Number: C5776-1g
Lot Number: SLBC9840V
Sample Class: Powder
Sample Color: White
Qty to Test: Spatula / High Quantity = Overload

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>300</td>
<td>300</td>
</tr>
</tbody>
</table>

Conclusion: No blue forms and end result is pink over colorless so sugar gives presumptive negative result for cocaine.
NIK Test A - General Screening

MODEL: 800-6071 SKU: 1006149 PART: 800-6071
NIK-U SDS http://sds.chemtel.net/webclients/safariland/archive/NIK%206413%20Cocaine%20and%20Free%20Base%20MSDS.pdf
Name: Modified Scott Reagent, 3 Ampoules

Contents:
- Ampoule 1: Con. Sulfuric Acid, 95%
- Ampoule 2: 40% Aq. Formaldehyde, 5%

Marquis Reagent - This reagent presumptively identifies Opium Alkaloids, Heroin and Amphetamine type compounds and as a general screening agent for other drugs.

Description - A rapidly developing purple or blue-violet color indicates Opium alkaloids (Morphine or Codeine) or Heroin. An immediate orange color rapidly turning to a brown color indicates Amphetamine-type compounds. Refer to Polytesting Chart for other color results.

Procedure: NIK-G.v1 (by Dave Symonsbergen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-A Cocaine SIAL 17KA42
Date: 10/5/2017
Person: Dave Symonsbergen
Experiment: 17KA42
Substance: Cocaine Hydrochloride, >97.5%
Source: Sigma-Adrich
Item Number: C5776-1g
Lot Number: SLBC9840V
Sample Class: Powder
Sample Color: White
Qty to Test: Analytical Spatula / Regular Quantity

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Colorless</td>
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<tr>
<td>300</td>
<td>Colorless</td>
<td>300</td>
</tr>
</tbody>
</table>

CONCLUSION: Too much cocaine leads to only a blue color and would be a false negative.

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
NIK Test G - for Cocaine

MODEL: 800-6077 SKU: 1006155 PART: 800-6077
WEBSITE: http://www.safariland.com/products/forensics/field-drug-tests/nik-test-g--cocaine-crack-and-free-base-1006155.html#sm.00hvgb531c3juiu6bghj2nlylm
Name: Modified Scott Reagent, 3 Ampoules

Contents:

<table>
<thead>
<tr>
<th>Ampoule 1</th>
<th>Ampoule 2</th>
<th>Ampoule 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cobalt Thiocyanate, 1%</td>
<td>Tartaric Acid, 1%</td>
<td>Hydrochloric Acid, 90%</td>
</tr>
<tr>
<td>Glycerol, 40-60%</td>
<td></td>
<td>Chloroform, &gt;90%</td>
</tr>
<tr>
<td>Boric Acid, 1%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Modified Scott Reagent - A test for Cocaine, Crack, or Free Base

Description: Blue or pink with blue speckles after breaking the first Ampoule, a blue flash followed by a pink result after breaking Ampoule 2, and a pink layer over a blue layer after breaking Ampoule 3. NOTE: All color changes are necessary for a presumptive positive test.

Procedure: NIK-G.v1 (by Dave Symonsbergen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-A Cocaine SIAL 17KA42
Date: 10/5/2017
Person: Dave Symonsbergen
Experiment: 17KA42
Substance: Cocaine Hydrochloride, >97.5%
Source Sigma-Aldrich
Item Number: C5776-1g
Lot Number: SLBC940V
Sample Class: Powder
Sample Color: White
Qty to Test: Analytical Spatula / Regular Quantity

<table>
<thead>
<tr>
<th>TIME (Sec)</th>
<th>COLOR &amp; NOTES</th>
<th>TIME (Sec)</th>
<th>COLOR &amp; NOTES</th>
<th>TIME (Sec)</th>
<th>COLOR &amp; NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Pink solution with blue solid speckles</td>
<td>0</td>
<td>Gets hazey looks pink</td>
<td>0</td>
<td>Blue forms &lt;10 seconds</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
<td>30</td>
<td>Layers form 15 seconds</td>
<td>45</td>
<td>Top pink, bottom blue</td>
</tr>
<tr>
<td>45</td>
<td>60</td>
<td>75</td>
<td></td>
<td>90</td>
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<td>120</td>
<td>180</td>
<td>240</td>
<td></td>
<td>300</td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSION: Pink over blue confirms presumptive positive test for cocaine. Test worked well as the color changes for all 3 Ampoules were observed.
NIK Test A - General Screening

Contents:
- Ampoule 1: Con. Sulfuric Acid, 95%
- Ampoule 1: 40% Aq. Formaldehyde, 5%

Marquis Reagent - This reagent presumptively identifies Opium Alkaloids, Heroin and Amphetamine type compounds and as a general screening agent for other drugs.

Description - A rapidly developing purple or blue-violet color indicates Opium alkaloids (Morphine or Codeine) or Heroin. An immediate orange color rapidly turning to a brown color indicates Amphetamine-type compounds. Refer to Polytesting Chart for other color results.

Procedure: NIK-G.v1 (by Dave Symonsbergen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-A Cocaine SIAL 17KA42
Date: 10/5/2017
Person: Dave Symonsbergen
Experiment: 17KA42
Substance: Cocaine Hydrochloride, >97.5%
Source: Sigma-Adrich
Item Number: C5776-1g
Lot Number: SLBC9840
Sample Class: Powder
Sample Color: White
Qty to Test: Analytical Spatula / Regular Quantity

<table>
<thead>
<tr>
<th>TIME (Sec)</th>
<th>AMPOULE 1 COLOR &amp; NOTES</th>
<th>AMPOULE 2 COLOR &amp; NOTES</th>
<th>AMPOULE 3 COLOR &amp; NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Colorless</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>15</td>
<td>Colorless</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td>Colorless</td>
<td>30</td>
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</tr>
<tr>
<td>45</td>
<td>Colorless</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>60</td>
<td>Colorless</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>75</td>
<td>Colorless</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>90</td>
<td>Colorless</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>120</td>
<td>Colorless</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>180</td>
<td>Colorless</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>240</td>
<td>Colorless</td>
<td>240</td>
<td>240</td>
</tr>
<tr>
<td>300</td>
<td>Colorless</td>
<td>300</td>
<td>300</td>
</tr>
</tbody>
</table>

CONCLUSION: No color change was observed after 5 minutes, which on the Color Chart leads to NIK-G: see [17JA02]
NIK Test G - for Cocaine

Contents:
- Ampoule 1: Con. Sulfuric Acid, 95%
- Ampoule 1: 40% Aq. Formaldehyde, 5%
- Ampoule 1: Boric Acid, 1%
- Ampoule 2: Tartaric Acid, 1%
- Ampoule 2: Hydrochloric Acid, 90%
- Ampoule 3: Chloroform, >90%

Modified Scott Reagent - A test for Cocaine, Crack, or Free Base.

Description - Blue or pink with blue speckles after breaking the first Ampoule, a blue flash followed by a pink result after breaking the second Ampoule, and a pink layer over a blue layer after breaking the third Ampoule. NOTE: All color changes are necessary for a presumptive positive test.

Procedure: NIK-G.v1 (by Dave Symonsbergen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

CONCLUSION: Pink over blue confirms presumptive positive test for cocaine. Test worked well as the color changes for all 3 Ampoules were observed.

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
NIK Test A - General Screening

MODEL: 800-6071 SKU: 1006149 PART: 800-6071
NIK-U SDS http://sds.chemtel.net/webclients/safariland/archive/NIK%206413%20Cocaine%20and%20Free%20Base%20MSDS.pdf
Name: Marquis Reagent, 1 Ampoule

Contents:
Ampoule 1 Con. Sulfuric Acid, 95%
Ampoule 1 40% Aq. Formaldehyde, 5%

Marquis Reagent - This reagent presumptively identifies Opium Alkaloids, Heroin and Amphetamine type compounds and as a general screening agent for other drugs

Description - A rapidly developing purple or blue-violet color indicates Opium alkaloids (Morphine or Codeine) or Heroin. An immediate orange color rapidly turning to a brown color indicates Amphetamine-type compounds. Refer to Polytesting Chart for other color results.

Procedure: NIK-A.v1 (by Dave Symonsbegen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Conclusions:
No color change with NIK-A which leads to the right on the Color Chart to NIK-G. See [17JA12].

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
NIK Test G - for Cocaine

MODEL: 800-6077 SKU: 1006155 PART: 800-6077

Name: Modified Scott Reagent, 3 Ampoules

Contents:

| Ampoule 1 | Cobalt Thiocyanate, 1% |
| Ampoule 1 | Glycerol, 40-60% |
| Ampoule 1 | Boric Acid, 1% |
| Ampoule 2 | Tartaric Acid, 1% |
| Ampoule 2 | Hydrochloric Acid, 90% |
| Ampoule 3 | Chloroform, >90% |

Modified Scott Reagent - A test for Cocaine, Crack, or Free Base.
Description - Blue or pink with blue speckles after breaking the first Ampoule, a blue flash followed by a pink result after breaking the second Ampoule, and a pink layer over a blue layer after breaking the third Ampoule. NOTE: All color changes are necessary for a presumptive positive test

Procedure: NIK-G.v1 (by Dave Symonsbegen on 10/05/17)
1 - Classify the material to be tested: pill, powder, plant, or liquid.
2 - Note the color of the material.
3 - Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4 - Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5 - With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6 - Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7 - Note the color changes and how many seconds have passed for each color change.
8 - Record the color changes on the time chart in the experimental section.
9 - Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10 - For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-G Cocaine HCl SIAL 17JA02
Date: 10/5/2017
Person: Dave Symonsbegen
Experiment: 17JA12
Substance: Cocaine-HCl + Caffeine
Source Sigma-Adrich + Sigma-Aldrich
Item Number C5776-1g + C0750-100g
Lot Number SLBC9840V + 099K1441
Sample Class: Powder + Powder
Sample Color: White + White
Qty to Test: Analytical spatula

| AMPOULE 1 | AMPOULE 2 | AMPOULE 3 |
| Time (Sec) | COLOR & NOTES | Time (Sec) | COLOR & NOTES | Time (Sec) | COLOR & NOTES |
| 0 | Very blue | 0 | Blue flash, fades fast to pink | 0 | Gets hazy looks blue-gray |
| 15 | darkening | 15 | Color starting to darken | 15 | Color starting to darken |
| 30 | Dark Blue | 30 | Blue forms and layers form | 30 | Blue forms and layers form |
| 45 | 45 | 45 | | 45 | |
| 60 | 60 | 60 | TBottom dark blue, top faint pink | 60 | TBottom dark blue, top faint pink |
| 75 | 75 | 75 | | 75 | |
| 90 | 90 | 90 | | 90 | |
| 120 | 120 | 120 | | 120 | |
| 180 | 180 | 180 | | 180 | |
| 240 | 240 | 240 | | 240 | |
| 300 | 300 | 300 | | 300 | |

CONCLUSION: Pink over blue confirms presumptive positive test for cocaine- test worked well as color changes observed of all 3 Ampoules, and the caffeine did not hinder the positive indication of cocaine. This test worked well with the mixture.

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
# NIK Test A - General Screening

**MODEL:** 800-6071 SKU: 1006149 PART: 800-6071  
**WEBSITE:** [http://www.safariland.com/products/forensics/field-drug-tests/nik-test-a---general-screening-1006149. html#sm.00thvgs351cjump16bighi2nyln](http://www.safariland.com/products/forensics/field-drug-tests/nik-test-a---general-screening-1006149. html#sm.00thvgs351cjump16bighi2nyln)  
**NIK-U SDS**  
[http://sds.chemtel.net/webclients/safariland/archive/NIK%206413%20Cocaine%20and%20Free%20Base%20MSDS.pdf](http://sds.chemtel.net/webclients/safariland/archive/NIK%206413%20Cocaine%20and%20Free%20Base%20MSDS.pdf)  
**Name:** Marquis Reagent, 1 Ampoule

### Contents:

- **Ampoule 1** Con. Sulfuric Acid, 95%
- **Ampoule 2** 40% Aq. Formaldehyde, 5%

**Marquis Reagent** - This reagent presumptively identifies Opium Alkaloids, Heroin and Amphetamine type compounds and as a general screening agent for other drugs.  
**Description** - A rapidly developing purple or blue-violet color indicates Opium alkaloids (Morphine or Codeine) or Heroin. An immediate orange color rapidly turning to a brown color indicates Amphetamine-type compounds. Refer to Polytesting Chart for other color results.

### Procedure: **NIK-A.v1** (by Dave Symonsbegen on 10/05/17)

1. Classify the material to be tested: pill, powder, plant, or liquid.  
2. Note the color of the material.  
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.  
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.  
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.  
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.  
7. Note the color changes and how many seconds have passed for each color change.  
8. Record the color changes on the time chart in the experimental section.  
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.  
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

### Experiment: **NIK-A Cocaine+Sugar 17JA08**

**Date:** 10/5/2017  
**Person:** Dave Symonsbegen  
**Experiment:** 17JA08  
**Substance:** Cocaine-HCl + Sugar Granulated  
**Source** Sigma-Adrich + Wallys  
**Item Number** C5776-1g  
**Lot Number** SLBC9840V  
**Sample Class:** Powder  
**Sample Color:** White  
**Qty to Test:** Analytical Spatula

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TIME (Sec)</strong></td>
<td><strong>COLOR &amp; NOTES</strong></td>
<td><strong>TIME (Sec)</strong></td>
</tr>
<tr>
<td>0</td>
<td>Yellow</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>30</td>
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<tr>
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<tr>
<td>60</td>
<td>Yellow</td>
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<td>90</td>
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<td>240</td>
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<td>240</td>
</tr>
<tr>
<td>300</td>
<td>Yellow</td>
<td>300</td>
</tr>
</tbody>
</table>

**CONCLUSION:** Immediately turns yellow and then no change after 5 minutes which on the Color Chart goes to the left to NIK-B to check for either Psilocybin or STP (2,5-Dimethoxy-4 methy lamphetamine = STP = Serenity, Tranquility, & Peace).

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs.  
*Int J Cri & For Sci. 2:5, 81-137*
NIK Test B - Nitric Acid Reagent, General Screening Drug Test

Contents:
Ampoule 1 Nitric Acid, 50-100%

Nitric Acid Reagent - Secondary screening test for the confirmation of Opiates (Morphine, Heroin, or Codeine) and Amphetamine-type compounds, as well as a general screening test for other drugs

Description - A yellow Color slowly changing to light green indicates Heroin. An orange color changing very rapidly to red and then slowly to yellow indicates Morphine. An orange color changing slowly to yellow indicates Codeine

Procedure: NIK-B.v1 (by Dave Symonsbegen on 11/06/17)
1 - Classify the material to be tested: pill, powder, plant, or liquid.
2 - Note the color of the material.
3 - Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4 - Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5 - With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6 - Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7 - Note the color changes and how many seconds have passed for each color change.
8 - Record the color changes on the time chart in the experimental section.
9 - Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10 - For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-B Cocaine + Sugar 17JA09
Date: 10/5/2017
Person: Dave Symonsbegen
Experiment: 17JA09
Substance: Cocaine HCl & Sugar Granulated
Source: Sigam-Aldrich & Wallys
Item Number: C5776-1g
Lot Number: SLBC9840V
Sample Class: Crystalline Solid
Sample Color: White
Qty to Test: Analytical spatula

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Colorless, has undissolved solids</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td></td>
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</tr>
<tr>
<td>45</td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>60</td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>75</td>
<td>Very faint yellow</td>
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</tr>
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<td>90</td>
<td></td>
<td>90</td>
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<tr>
<td>120</td>
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<td>180</td>
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</tr>
<tr>
<td>240</td>
<td></td>
<td>240</td>
</tr>
<tr>
<td>300</td>
<td>No color, sugar undissolved</td>
<td>300</td>
</tr>
</tbody>
</table>

Conclusion: No color as the sugar remained undissolved. Barely yellow against a white background; no orange or olive green color so result is negative for opiates, amphetamines, or other drugs.
NIK Test G - for Cocaine

MODE: 800-6077 SKU: 1006155 PART: 800-6077

Name: Modified Scott Reagent, 3 Ampoules

Contents:
- Ampoule 1: Cobalt Thiocyanate, 1%
- Ampoule 1: Glycerol, 40-60%
- Ampoule 1: Boric Acid, 1%
- Ampoule 2: Tartaric Acid, 1%
- Ampoule 2: Hydrochloric Acid, 90%
- Ampoule 2: Chloroform, >90%
- Ampoule 3: Tartaric Acid, 1%
- Ampoule 3: Hydrochloric Acid, 90%
- Ampoule 3: Chloroform, >90%

Modified Scott Reagent - A test for Cocaine, Crack, or Free Base.
Description: Blue or pink with blue speckles after breaking the first Ampoule, a blue flash followed by a pink result after breaking the second Ampoule, and a pink layer over a blue layer after breaking the third Ampoule. NOTE: All color changes are necessary for a presumptive positive test.

Procedure: NIK-G.v1 (by Dave Symonsbegen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.
11. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-G Cocaine-HCl+Sugar 17JA10
Date: 10/5/2017
Person: Dave Symonsbegen
Experiment: 17JA10
Substance: Cocaine-HCl + Sugar Granulated
Source: Sigma-Adrich+ Wallys
Item Number: C5776-1g
Lot Number: SLBC9840V
Sample Class: Powder
Sample Color: White
Qty to Test: Analytical spatula

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Faint blue</td>
<td>0</td>
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<tr>
<td>15</td>
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<tr>
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</tbody>
</table>

CONCLUSION: Pink over blue confirms presumptive positive test for cocaine. The test worked well as color changes observed of all 3 Ampoules, and the sugar did not hinder the positive indication of cocaine. This test worked well with...
NIK Test A - General Screening

MODEL: 800-6071 SKU: 1006149 PART: 800-6071
NIK-U SDS http://sds.chemtel.net/webclients/safariland/archive/NIK%206413%20Cocaine%20and%20Free%20Base%20MSDS.pdf

Name: Marquis Reagent, 1 Ampoule

Contents:

Ampoule 1 Con. Sulfuric Acid, 95%
Ampoule 1 40% Aq. Formaldehyde, 5%

Marquis Reagent - This reagent presumptively identifies Opium Alkaloids, Heroin and Amphetamine type compounds and as a general screening agent for other drugs.

Description - A rapidly developing purple or blue-violet color indicates Opium alkaloids (Morphine or Codeine) or Heroin. An immediate orange color rapidly turning to a brown color indicates Amphetamine-type compounds. Refer to Polytstesting Chart for other color results.

Procedure: NIK-A.v1 (by Dave Symonsbegen on 10/05/17)
1 - Classify the material to be tested: pill, powder, plant, or liquid.
2 - Note the color of the material.
3 - Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4 - Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5 - With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6 - Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7 - Note the color changes and how many seconds have passed for each color change.
8 - Record the color changes on the time chart in the experimental section.
9 - Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10 - For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-A Cocaine+Sugar 17JA08
Date: 11/6/2017
Person: Dave Symonsbegen
Experiment: 17KA01
Substance: D-Amphetamine Sulfate
Source: Sigma-Adrich
Item Number: A5880-5g
Lot Number: 068k1069V
Sample Class: Powder
Sample Color: White
Qty to Test: Analytical Spatula

<table>
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<tr>
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<th>AMPOLUE 3</th>
</tr>
</thead>
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<tr>
<td>300</td>
<td>Yellow</td>
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</table>

CONCLUSION: Immediate orange color leads straight down on the color chart, and the change from orange to brown then leads to NIK-U test for amphetamines: see [17KA02]. NIK-A test worked well here.
**NIK Test U - for Methamphetamine and MDMA (Ecstasy)**

**MODEL:**
080-6087 SKU: 1006165 PART: 080-6087

**WEBSITE:**

**NIK-U SDS**

**Name:**
Marquis Reagent, 1 Ampoule

**Contents:**

**Ampoule 1**
Con. Sulfuric Acid, 95%

**Ampoule 1**
40% Aq. Formaldehyde, 5%

---

**Sodium Nitroferriccyanide Reagent for the detection of Methamphetamine and MDMA (Ecstasy)**

**Description:**
A positive result is obtained after a brown or violet result in Test A. Test A should always be used prior to Test U, as color results for Methamphetamine, Amphetamine and MDMA Ecstasy can be very similar.

**Procedure: NIK-A.v1** (by Dave Symonsbegen on 10/05/17)

1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. After 30 seconds, repeat Steps 5-8 with Ampoule 2, and then after another 30 seconds with Ampoule 3.
10. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
11. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

**Experiment:**
NIK-U d-Amphetamine SIAL 17KA02

**Date:**
11/6/2017

**Person:**
Dave Symonsbegen

**Experiment:**
17KA02

**Substance:**
d-Amphetamine Sulfate

**Source:**
Sigma-Adrich

**Item Number:**
A5880-5g

**Lot Number:**
068K1069V

**Sample Class:**
Powder

**Sample Color:**
White

**Qty to Test:**
Analytical Spatula

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<th>TIME (Sec)</th>
<th>COLOR &amp; NOTES</th>
<th>TIME (Sec)</th>
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</table>

**CONCLUSION:** Immediate color change to red on Ampoule 3 that darkened to violet in 60 seconds, presumptively affirming amphetamines. The test worked well.

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
**NIK Test A - General Screening**

MODEL: 800-6071 SKU: 1006149 PART: 800-6071
NIK-U SDS [http://sds.chemtel.net/webclients/safariland/archive/NIK%206413%20Cocaine%20and%20Free%20Base%20MSDS.pdf](http://sds.chemtel.net/webclients/safariland/archive/NIK%206413%20Cocaine%20and%20Free%20Base%20MSDS.pdf)
Name: Marquis Reagent, 1 Ampoule

**Contents:**
- Ampoule 1 Con. Sulfuric Acid, 95%
- Ampoule 1 40% Aq. Formaldehyde, 5%

**Marquis Reagent** - This reagent presumptively identifies Opium Alkaloids, Heroin and Amphetamine type compounds and as a general screening agent for other drugs

**Description** - A rapidly developing purple or blue-violet color indicates Opium alkaloids (Morphine or Codeine) or Heroin. An immediate orange color rapidly turning to a brown color indicates Amphetamine-type compounds. Refer to Polytesting Chart for other color results.

**Procedure: NIK-A.v1** (by Dave Symonsbergen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

**Experiment: NIK-A Cocaine+Sugar 17JA08**
- **Date:** 11/6/2017
- **Person:** Dave Symonsbegen
- **Experiment:** 17KA01
- **Substance:** d-Amphetamine Sulfate
- **Source:** Sigma-Adrich
- **Item Number:** A5880-5g
- **Lot Number:** 068K1069V
- **Sample Class:** Powder
- **Sample Color:** White
- **Qty to Test:** Analytical Spatula

<table>
<thead>
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<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
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<td>TIME (Sec)</td>
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<tr>
<td>300</td>
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<td>300</td>
</tr>
</tbody>
</table>

**CONCLUSION:** Immediate orange color leads straight down on the color chart, and the change from orange to brown then leads to NIK-U test for amphetamines: see [17KA02]. NIK-A test worked well here.
NIK Test U - for Methamphetamine and MDMA (Ecstasy)

**Model:** 800-6087 SKU: 1006165 PART: 800-6087


**Name:** Sodium Nitroferricyanide Reagent, 3 Ampoules

**Contents:**
- **Ampoule 1**: Aq. Sodium Carbonate, 10%
- **Ampoule 1**: Acetaldehyde, 25%
- **Ampoule 3**: Sodium Nitroferricyanide, 5%

**Sodium Nitroferricyanide Reagent for the detection of Methamphetamine and MDMA (Ecstasy)**

**Description:** A positive result is obtained after a brown or violet result in Test A. Test A should always be used prior to Test U, as color results for Methamphetamine, Amphetamine and MDMA Ecstasy can be very similar.

**Procedure: NIK-A.v1** (by Dave Symonsbegen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
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6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.
11. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

**Experiment: NIK-U 17KA04 Fentanyl Citrate SIAL**

**Date:** 11/6/2017
**Person:** Dave Symonsbegen
**Experiment:** 17KA04
**Substance:** Fentanyl Citrate
**Source:** Sigma-Adrich
**Item Number:** F3886-50mg
**Lot Number:** 011M1501V
**Sample Class:** Powder
**Sample Color:** White
**Qty to Test:** Analytical Spatula

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<th>AMPOULE 1</th>
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<th>AMPOULE 3</th>
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<td>COLOR &amp; NOTES</td>
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<tr>
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</tbody>
</table>

**CONCLUSION:** Immediate color change to red on Ampoule 3 that darkened to violet in 60 seconds, presumptively affirming amphetamines. The test worked well.

**Citation:** Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
NIK Test A - General Screening

MODEL: 800-6071 SKU: 1006149 PART: 800-6071
NIK-G SDS http://sds.chemtel.net/webclients/safariland/archive/NIK%206413%20Cocaine%20and%20Free%20Base%20MSDS.pdf
Name: Marquis Reagent, 1 Ampoule

Contents:
- Ampoule 1 Con. Sulfuric Acid, 95%
- Ampoule 1 40% Aq. Formaldehyde, 5%

Marquis Reagent - This reagent presumptively identifies Opium Alkaloids, Heroin and Amphetamine type compounds and as a general screening agent for other drugs
Description - A rapidly developing purple or blue-violet color indicates Opium alkaloids (Morphine or Codeine) or Heroin. An immediate orange color rapidly turning to a brown color indicates Amphetamine-type compounds. Refer to Polysteing Chart for other color results.

Procedure: NIK-A.v1 (by Dave Symonsbegen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-A Hydrocodone Bitartrate SIAL 17KA19
Date: 11/6/2017
Person: Dave Symonsbegen
Experiment: 17KA19
Substance: Sugar Granulated-5LB
Source: Wallys
Item Number: H4516-250mg
Lot Number: 047F0128V
Sample Class: Powder
Sample Color: White
Qty to Test: Analytical spatula

<table>
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<th>AMPOLUE 1</th>
<th>AMPOLUE 2</th>
<th>AMPOLUE 3</th>
</tr>
</thead>
<tbody>
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</table>

Conclusion: Slowly turns pink over 30 seconds and then darkens to purple over 90 seconds indicating opiates. The color change here with one -Ome group and one carbonyl is mild compared to when there is a free -OH as shown below right for the Hydromorphone result from [17KA05] which afforded a deep purple

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
NIK Test U - for Methamphetamine and MDMA (Ecstasy)

MODEL: 800-6087 SKU: 1006165 PART: 800-6087
Name: Sodium Nitroferricyanide Reagent, 3 Ampoules

Contents:
- Ampoule 1 Aq. Sodium Carbonate, 10%
- Ampoule 1 Acetaldehyde, 25%
- Ampoule 3 Sodium Nitroferricyanide, 5%

Sodium Nitroferricyanide Reagent for the detection of Methamphetamine and MDMA (Ecstasy)
Description - A positive result is obtained after a brown or violet result in Test A. Test A should always be used prior to Test U, as color results for Methamphetamine, Amphetamine and MDMA Ecstasy can be very similar.

Procedure: NIK-U.v1 (by Dave Symonsbegen on 11/06/17)
NOTE: Agitate each Ampoule for 30 SECONDS, and then break the next Ampoule.
1 - Classify the material to be tested: pill, powder, plant, or liquid.
2 - Note the color of the material.
3 - Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4 - Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5 - With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6 - Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7 - Note the color changes and how many seconds have passed for each color change.
8 - Record the color changes on the time chart in the experimental section.
9 - Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10 - Once the test is complete, take a photo of the pouch against a white background as evidence of the results.11 - For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseel, and dispose of the pouch.

Experiment: NIK-U 17KA04 Fentanyl Citrate SIAL
Date: 11/6/2017
Person: Dave Symonsbegen
Experiment: 17KA20
Substance: Hydrocodone Bitartrate
Source: Sigma-Adrich
Item Number: H4516-250mg
Lot Number: 047F0128V
Sample Class: Powder
Sample Color: White
Qty to Test: Analytical Spatula

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<th>AMPOULE 3</th>
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<tr>
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</table>

CONCLUSION: Immediate color change to red on Ampoule 3 that darkened to violet in 30 seconds, presumtively affirming Opiates and leading to tests NIK-L or NIK-K. This test worked well here- see NIK-L [17KA21] and NIK-K

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
**NIK Test K - Opiate Family**

**MODEL:** 800-6080  
**SKU:** 1006158  
**PART:** 800-6080

**WEBSITE:**  

**NIK-U SDS**  

**Name:** Marquis Reagent Family, 1 Ampoule

**Contents:**

- **Ampoule 1**  
  Con. Sulfuric Acid, 90%

- **Ampoule 1**  
  37% Aq. Formaldehyde, 1%

**Marquis Reagent Derivation** - For the presumptive identification of Heroin, Black Tar, Codeine and Morphine. Easier to distinguish between the four Opiates than using Test B. This test can also be used to screen out Methamphetamine and Propoxyphene.

**Description** - A positive result is obtained after a brown or violet result in Test A. Test A should always be used prior to Test U, as color results for Methamphetamine, Amphetamine and MDMA Ecstasy can be very similar.

**Procedure: NIK-K.v1** (by Dave Symonsbegen on 11/06/17)

1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

**Experiment:** NIK-K Hydrocodone Bitartrate SIAL 17KA22

<table>
<thead>
<tr>
<th>TIME (Sec)</th>
<th>COLOR &amp; NOTES</th>
<th>TIME (Sec)</th>
<th>COLOR &amp; NOTES</th>
<th>TIME (Sec)</th>
<th>COLOR &amp; NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Immediate green</td>
<td>0</td>
<td>N/A</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>15</td>
<td>Darkening</td>
<td>15</td>
<td>15</td>
<td>30</td>
<td>Green</td>
</tr>
<tr>
<td>45</td>
<td></td>
<td>45</td>
<td>45</td>
<td>60</td>
<td>Dark Green</td>
</tr>
<tr>
<td>75</td>
<td></td>
<td>75</td>
<td>75</td>
<td>90</td>
<td></td>
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<tr>
<td>240</td>
<td></td>
<td>240</td>
<td>240</td>
<td>300</td>
<td></td>
</tr>
</tbody>
</table>

**CONCLUSION:** Immediate green that keeps darkening to 30 seconds ending in dark green. Does not really look purple or blue. Test does not indicate either Heroin, Morphine, or Codeine, which is correct.

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
NIK Test L - Heroin: White, Brown, Black Tar

MODEL: 800-6081 SKU: 1006159 PART: 800-6081


Name: Marquis Reagent Family, 1 Ampoule

Contents:
- Ampoule 1 Con. Sulfuric Acid, 95%
- Ampoule 2 37% Aq. Formaldehyde, 1%
- Ampoule 2 Selenious Acid, 1%

Modified Meck's Reagent - This reagent presumptively identifies Heroin in all forms, including White, Brown and Black Tar, as well as MDMA Ecstacy, as well as detecting the presence of certain dye combinations designed to give false positives with Test A.

Description - A purple color after breaking the first amuole indicates MDMA (Ecstacy). A green color after breaking the second Ampoule that intensifies with prolonged agitation indicates Heroin.

Procedure: NIK-K.v1 (by Dave Symonsbegen on 11/06/17)
1 - Classify the material to be tested: pill, powder, plant, or liquid.
2 - Note the color of the material.
3 - Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4 - Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5 - With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6 - Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7 - Note the color changes and how many seconds have passed for each color change.
8 - Record the color changes on the time chart in the experimental section.
9 - Repeat Steps 5-8 with Ampoule 2.
10 - Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
11 - For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-L 17KA21 Hydrocodone Bitartrate SIAL
Date: 11/6/2017
Person: Dave Symonsbegen
Experiment: 17KA21
Substance: Hydrocodone Bitartrate
Source: Sigma-Adrich
Item Number: H4516-250mg
Lot Number: 047F0128V
Sample Class: Powder
Sample Color: White
Qty to Test: Analytical Spatula

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Colorless</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>Grayish</td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td>Faint purple</td>
<td>30</td>
</tr>
<tr>
<td>45</td>
<td>Darkening</td>
<td>45</td>
</tr>
<tr>
<td>60</td>
<td>Dark Green</td>
<td>60</td>
</tr>
<tr>
<td>75</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>90</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>120</td>
<td>Darkening</td>
<td>120</td>
</tr>
<tr>
<td>180</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>240</td>
<td>240</td>
<td></td>
</tr>
<tr>
<td>300</td>
<td>300</td>
<td>Purple</td>
</tr>
</tbody>
</table>

CONCLUSION: There was no color change with Ampoule 1 which rules out MDMA. The green color for Ampoule 2 did not occur, rather it turned gray at 15 seconds, changed to purple by 30 seconds, and slowly darkened to 5 minutes.

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
NIK Test A - General Screening

MODEL: 800-6071 SKU: 1006149 PART: 800-6071
NIK-G SDS http://sds.chemtel.net/webclients/safariland/archive/NIK%206413%20Cocaine%20and%20Free%20Base%20MSDS.pdf
Name: Marquis Reagent, 1 Ampoule

Contents:
- Ampoule 1: Con. Sulfuric Acid, 95%
- Ampoule 2: 40% Aq. Formaldehyde, 5%

Marquis Reagent - This reagent presumptively identifies Opium Alkaloids, Heroin and Amphetamine type compounds and as a general screening agent for other drugs
Description - A rapidly developing purple or blue-violet color indicates Opium alkaloids (Morphine or Codeine) or Heroin. An immediate orange color rapidly turning to a brown color indicates Amphetamine-type compounds. Refer to Polytesting Chart for other color results.

Procedure: NIK-A.v1 (by Dave Symonsbergen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-A Hydromorphone-HCl SIAL 17KA05
Date: 11/6/2017
Person: Dave Symonsbergen
Experiment: 17kA05
Substance: Hydromorphone Hydrochloride
Source: Sigma-Adrich
Item Number: H5136-250mg
Lot Number: 041M1444V
Sample Class: Powder
Sample Color: White
Qty to Test: Analytical spatula / Regular Qty

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Faint yellow</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td>Turning Pink</td>
<td>30</td>
</tr>
<tr>
<td>45</td>
<td>Darkening</td>
<td>45</td>
</tr>
<tr>
<td>60</td>
<td>Purple</td>
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</tr>
<tr>
<td>75</td>
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<tr>
<td>90</td>
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<td>240</td>
</tr>
<tr>
<td>300</td>
<td>300</td>
<td></td>
</tr>
</tbody>
</table>

Conclusion: Pink color darkens to purple over 90 seconds lead to the right on the Color Chart to NIK-U test which will distinguish MDMA or the Opiates. This test worked well. See NIK-U [17KA06].

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
NIK Test A - General Screening

MODEL: 800-6071 SKU: 1006149 PART: 800-6071
NIK-G SDS http://sds.chemtel.net/webclients/safariland/archive/NIK%206413%20Cocaine%20and%20Free%20Base%20MSDS.pdf
Name: Marquis Reagent, 1 Ampoule

Contents:
Ampoule 1 Con. Sulfuric Acid, 95%
Ampoule 1 40% Aq. Formaldehyde, 5%

Marquis Reagent - This reagent presumptively identifies Opium Alkaloids, Heroin and Amphetamine type compounds and as a general screening agent for other drugs
Description - A rapidly developing purple or blue-violet color incitates Opium alkaloids (Morphine or Codeine) or Herine. An immediate orange color rapidly turning to a brown color indicates Amphetamine-type compounds. Refer to Polytesting Chart for other color results.

Procedure: NIK-G.v1 (by Dave Symonsbergen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-A Hydromorphone-HCl SIAL 17KA25
Date: 11/6/2017
Person: Dave Symonsbergen
Experiment: 17KA25
Substance: Hydromorphone Hydrochloride
Source: Sigma-Aldrich
Item Number: H5136-250mg
Lot Number: 041M1444V
Sample Class: Power
Sample Color: White
Qty to Test: Analytical spatula / Small Qty = Dilute

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Faint yellow</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>Yellowish</td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td>Darkening</td>
<td>45</td>
</tr>
<tr>
<td>45</td>
<td>Pink</td>
<td>60</td>
</tr>
<tr>
<td>75</td>
<td>Darkening</td>
<td>75</td>
</tr>
<tr>
<td>90</td>
<td>Pink</td>
<td>90</td>
</tr>
<tr>
<td>120</td>
<td>Darkening</td>
<td>120</td>
</tr>
<tr>
<td>180</td>
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<td>340</td>
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<td>340</td>
</tr>
<tr>
<td>300</td>
<td>YELLOW</td>
<td>300</td>
</tr>
</tbody>
</table>

Conclusion: Yellow to Pink color that darkens to purple over 90 seconds once pink appears. Slower than NIK-A 17KA05; leads to the right on the Color Chart to NIK-U test which will distinguish MDMA or the Opiates. Did not repeat test NIK-U.
NIK Test U - for Methamphetamine and MDMA (Ecstasy)

**Contents:**
- Ampoule 1: Aq. Sodium Carbonate, 10%
- Ampoule 1: Acetaldehyde, 25%
- Ampoule 3: Sodium Nitroferricyanide, 5%

**Sodium Nitroferricyanide Reagent for the detection of Methamphetamine and MDMA (Ecstasy)**

**Description:** A positive result is obtained after a brown or violet result in Test A. Test A should always be used prior to Test U, as color results for Methamphetamine, Amphetamine and MDMA Ecstasy can be very similar.

**Procedure:** NIK-U.v1 (by Dave Symonsbergen on 11/06/17)

1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. After 30 seconds, repeat Steps 5-8 with Ampoule 2, and then after another 30 seconds with Ampoule 3.
10. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
11. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

**Experiment:** NIK-U 17KA04 Fentanyl Citrate SIAL

**Date:** 11/6/2017
**Person:** Dave Symonsbegen
**Experiment:** 17KA06
**Substance:** Hydromorpone Hydrochloride
**Source:** Sigma-Adrich
**Item Number:** H5136-250mg
**Lot Number:** 041M1444V
**Sample Class:** Powder
**Sample Color:** White

**Qty to Test:** Analytical Spatula

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Yellowish</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>30</td>
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<td>240</td>
</tr>
<tr>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
</tbody>
</table>

**CONCLUSION:** Immediate color change to red on Ampoule 3 that darkened to violet in 60 seconds, presumptively affirming Opiates and leading to tests NIK-L or NIK-K. This test worked well here; see NIK-L [17KA07] and NIK-K.

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
NIK Test K - Opiate Family

MODEL: 800-6080 SKU: 1006158 PART: 800-6080
Name: Marquis Reagent Family, 1 Ampoule

Contents:
Ampoule 1 Con. Sulfuric Acid, 90%
Ampoule 1 37% Aq. Formaldehyde, 1%

Marquis Reagent Derivation - For the presumptive identification of Heroin, Black Tar, Codeine and Morphine. Easier to distinguish between the four Opiates than using Test B. This test can also be used to screen out Methaprylene and Propoxyphene.

Description - An immediate green color changing to purple indicated Heroin. An immediate blue-green color changing to gray color indicated Morphine. An immediate stable blue color indicates Codeine.

Procedure: NIK-U.v1 (by Dave Symonsbegen on 11/06/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-K Hydromorphone-HCl SIAL 17KA08
Date: 11/6/2017
Person: Dave Symonsbegen
Experiment: 17KA08
Substance: Hydromorphone Hydrochloride
Source: Sigma-Adrich
Item Number: H5136-250mg
Lot Number: 041M1444V
Sample Class: Powder
Sample Color: White
Qty to Test: Analytical Spatula

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Green</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>Darkens to Brownish</td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td>30</td>
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<tr>
<td>45</td>
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<td></td>
</tr>
<tr>
<td>300</td>
<td>300</td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSION: Immediate green that turns brown by 15 seconds, then darkens to 90 seconds. Does not really look purple or blue. Repeated this experiment using 10x the material [Experiment # 17KB09] and went brown immediately. Test does not indicate either Heroin, Morphine, or Codeine, which is correct.

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
### NIK Test L - Heroin: White, Brown, Black Tar

**MODEL:** 800-6081 SKU: 1006159 PART: 800-6081


**Name:** Modified Meck's Reagent, 2 Ampoules

**Contents:**
- **Ampoule 1** Con. Sulfuric Acid, 95%
- **Ampoule 2** 37% Aq. Formaldehyde, 1%
- **Ampoule 2** Selenious Acid, 1%

**Modified Meck's Reagent** - This reagent presumptively identifies Heroin in all forms, including White, Brown and Black Tar, as well as MDMA Ecstasy, as well as detecting the presence of certain dye combinations designed to give false positives with Test A.

**Description** - A purple color after breaking the first ampoule indicates MDMA (Ecstasy). A green color after breaking the second Ampoule that intensifies with prolonged agitation indicates Heroin.

**Procedure:** NIK-K.v1 (by Dave Symonsbegen on 11/06/17)

1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Repeat Steps 5-8 with Ampoule 2.
10. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
11. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

**Experiment:** NIK-L Hydromorphone HCl SIAL 17KA07

**Date:** 11/6/2017

**Person:** Dave Symonsbegen

**Experiment:** 17KA07

**Substance:** Hydrocodone Bitartrate

**Source:** Sigma-Adrich

**Item Number:** H5136-250mg

**Lot Number:** 041M1444V

**Sample Class:** Powder

**Sample Color:** White

**Qty to Test:** Analytical Spatula

<table>
<thead>
<tr>
<th>TIME (Sec)</th>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
</tr>
<tr>
<td>0</td>
<td>Colorless</td>
<td>0</td>
<td>Colorless</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
<td>Faint Yellow</td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td>Colorless</td>
<td>30</td>
<td>Greenish</td>
</tr>
<tr>
<td>45</td>
<td>45</td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>60</td>
<td>60</td>
<td>Darkening</td>
<td>60</td>
</tr>
<tr>
<td>75</td>
<td>75</td>
<td></td>
<td>75</td>
</tr>
<tr>
<td>90</td>
<td>90</td>
<td>Green</td>
<td>90</td>
</tr>
<tr>
<td>120</td>
<td>120</td>
<td></td>
<td>120</td>
</tr>
<tr>
<td>180</td>
<td>180</td>
<td></td>
<td>180</td>
</tr>
<tr>
<td>240</td>
<td>240</td>
<td></td>
<td>240</td>
</tr>
<tr>
<td>300</td>
<td>300</td>
<td></td>
<td>300</td>
</tr>
</tbody>
</table>

**CONCLUSION:** There was no color change with Ampoule 1 which rules out MDMA. The green color was slow to form over 60 seconds and darkened to 90 seconds which confirms the presence of opioids.
NIK Test A - General Screening

MODEL: 800-6071 SKU: 1006149 PART: 800-6071
NIK-G SDS http://sds.chemtel.net/webclients/safariland/archive/NIK%206413%20Cocaine%20and%20Free%20Base%20MSDS.pdf
Name: Marquis Reagent, 1 Ampoule

Contents:
- Ampoule 1 Con. Sulfuric Acid, 95%
- Ampoule 2 40% Aq. Formaldehyde, 5%

Marquis Reagent - This reagent presumptively identifies Opium Alkaloids, Heroin and Amphetamine type compounds and as a general screening agent for other drugs
Description - A rapidly developing purple or blue-violet color incitates Opium alkaloids (Morphine or Codeine) or Heroine. An immediate orange color rapidly turning to a brown color indicates Amphetamine-type compounds. Refer to Polytesting Chart for other color results.

Procedure: NIK-G.v1 (by Dave Symonsbergen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Conclusion: Changed to orange and then to brown over 3 minutes, which on the color chart signals amphetamines, and leads to NIK-U: see [17KA13].
NIK Test U - for Methamphetamine and MDMA (Ecstasy)

MODEL: 800-6087 SKU: 1006165 PART: 800-6087


Name: Sodium Nitroferricyanide Reagent, 3 Ampoules

Contents:
- Ampoule 1: Aq. Sodium Carbonate, 10%
- Ampoule 1: Acetaldehyde, 25%
- Ampoule 3: Sodium Nitroferricyanide, 5%

Sodium Nitroferricyanide Reagent for the detection of Methamphetamine and MDMA (Ecstasy)

Description - A positive result is obtained after a brown or violet result in Test A. Test A should always be used prior to Test U, as color results for Methamphetamine, Amphetamine and MDMA Ecstasy can be very similar.

Procedure: NIK-U.v1 (by Dave Symonsbergen on 11/06/17)

NOTE: Agitate each Ampoule for 30 SECONDS, and then break the next Ampoule.

1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.
11. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-U LAAM HCl SIAL 17KA13

Date: 11/6/2017
Person: Dave Symonsbergen
Experiment: 17KA13
Substance: LAAM Hydrochloride, >98%
Source: Sigma-Adrich
Item Number: L7418
Lot Number: B2081284
Sample Class: Powder
Sample Color: White
Qty to Test: Analytical Spatula

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Faint Orange</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>45</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>75</td>
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<tr>
<td>90</td>
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<td>120</td>
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<td>180</td>
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<td>240</td>
<td>240</td>
<td>240</td>
</tr>
<tr>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
</tbody>
</table>

CONCLUSION: Immediate red on Ampoule 3 that changed to purple at 15 seconds and then darkened to 30 seconds indicating amphetamines.
NIK Test A - General Screening

MODEL: 800-6071 SKU: 1006149 PART: 800-6071
NIK-G SDS http://sds.chemtel.net/webclients/safariland/archive/NIK%206413%20Cocaine%20and%20Free%20Base%20MSDS.pdf
Name: Marquis Reagent, 1 Ampoule

Contents:
Ampoule 1 Con. Sulfuric Acid, 95%
Ampoule 1 40% Aq. Formaldeyde, 5%

Marquis Reagent - This reagent presumptively identifies Opium Alkaloids, Heroin and Amphetamine type compounds and as a general screening agent for other drugs.

Description - A rapidly developing purple or blue-violet color indicates Opium alkaloids (Morphine or Codeine) or Heroin. An immediate orange color rapidly turning to a brown color indicates Amphetamine-type compounds. Refer to Polytesting Chart for other color results.

Procedure: NIK-G.vi (by Dave Symonsbergen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-A MDMA HCl (Ecstasy) SIAL 17KA26
Date: 11/6/2017
Person: Dave Symonsbergen
Experiment: 17ka26
Substance: MDMA Hydrochloride (Ecstasy)
Source: Sigma-Adrich
Item Number: M5029-1mL [1mg/mL in MeOH]
Lot Number: 077K5013
Sample Class: Colorless Liquid Solution (almost empty)
Sample Color: added MeOH so could run test = very dilute
Qty to Test: Absorbed onto Analytical Filter Paper

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>[No Orange Formed]</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td>Paper turned Purple</td>
<td>30</td>
</tr>
<tr>
<td>45</td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>60</td>
<td>Paper darkening</td>
<td>60</td>
</tr>
<tr>
<td>75</td>
<td>Purple leaching into solution</td>
<td>75</td>
</tr>
<tr>
<td>90</td>
<td></td>
<td>90</td>
</tr>
<tr>
<td>120</td>
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<td>240</td>
</tr>
<tr>
<td>300</td>
<td>YELLOW</td>
<td>300</td>
</tr>
</tbody>
</table>

Conclusion: Paper turns purple first, then purples leaches into the solution. No orange color; purple goes to the right on the color chart to the NIK-U test to distinguish MDMA from the Opioids: see 17KA27. NIK-A worked well here.

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
**NIK Test U - for Methamphetamine and MDMA (Ecstasy)**

**Model:**
800-6087 SKU: 1006165 PART: 800-6087

**Website:**

**NIK-U SDS**

**Name:**
Sodium Nitroferricyanide Reagent, 3 Ampoules

**Contents:**
- **Ampoule 1**: Aq. Sodium Carbonate, 10%
- **Ampoule 1**: Acetaldehyde, 25%
- **Ampoule 3**: Sodium Nitroferricyanide, 5%

**Sodium Nitroferricyanide Reagent for the detection of Methamphetamine and MDMA (Ecstasy)**

**Description:** A positive result is obtained after a brown or violet result in Test A. Test A should always be used prior to Test U, as color results for Methamphetamine, Amphetamine and MDMA Ecstasy can be very similar.

**Procedure:** NIK-A.v1 (by Dave Symonsbergen on 11/06/17)

**NOTE:** Agitate each Ampoule for 30 SECONDS, and then break the next Ampoule.

1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.
11. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

**Experiment:** NIK-U MDMA HCl (Ecstasy) SIAL 17KA27

**Date:**
11/6/2017

**Person:**
Dave Symonsbeg

**Experiment:**
SIAL 17KA27

**Substance:**
MDMA Hydrochloride (Ecstasy)

**Source:**
Sigma-Adrich

**Item Number:**
M5029-1mL [1mg/mL in MeOH]

**Lot Number:**
077K5013

**Sample Class:**
Colorless Liquid Solution (almost empty-

**Sample Color:**
Added MeOH so could run test = very dilute

**Qty to Test:**
Absorbed onto Analytical Filter Paper

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Faint Orange</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
<td>15</td>
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<td>30</td>
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<td>240</td>
<td>240</td>
<td>240</td>
</tr>
<tr>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
</tbody>
</table>

**Conclusion:** Purple color change after Ampoule 3 indicated MDMA which is correct; and the NIK-A [17KA26] did give the correct color change to purple. This test worked well.
NIK Test A - General Screening

MODEL: 800-6071 SKU: 1006149 PART: 800-6071
NIK-G SDS http://sds.chemtel.net/webclients/safariland/archive/NIK%206413%20Cocaine%20and%20Free%20Base%20MSDS.pdf
Name: Marquis Reagent, 1 Ampoule

Contents:
- Ampoule 1 Con. Sulfuric Acid, 95%
- Ampoule 2 40% Aq. Formaldehyde, 5%

Marquis Reagent - This reagent presumptively identifies Opium Alkaloids, Heroin and Amphetamine type compounds and as a general screening agent for other drugs

Description - A rapidly developing purple or blue-violet color indicates Opium alkaloids (Morphine or Codeine) or Heroin. An immediate orange color rapidly turning to a brown color indicates Amphetamine-type compounds. Refer to Polytesting Chart for other color results.

Procedure: NIK-A.v1 (by Dave Symonsbegen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseel, and dispose of the pouch.

Experiment: NIK-A (-)-Deoxyephedrine SIAL (R-Methamphetamine) 17KA14
Date: 11/6/2017
Person: Dave Symonsbegen
Experiment: 17KA14
Substance: (-)-Deoxyephedrine
Source Sigma-Ardrich
Item Number D6787-1g
Lot Number 087K0683V
Sample Class: Liquid, mg/mL in MeOH
Sample Color: Colorless
Qty to Test: Absorbed onto Analytical Filter Paper

<table>
<thead>
<tr>
<th>TIME (Sec)</th>
<th>COLOR &amp; NOTES</th>
<th>TIME (Sec)</th>
<th>COLOR &amp; NOTES</th>
<th>TIME (Sec)</th>
<th>COLOR &amp; NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Orange</td>
<td>0</td>
<td>N/A</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>15</td>
<td>Darkening</td>
<td>15</td>
<td>Darkening</td>
<td>15</td>
<td>Darkening</td>
</tr>
<tr>
<td>30</td>
<td>Burnt Orange</td>
<td>30</td>
<td>Burnt Orange</td>
<td>30</td>
<td>Burnt Orange</td>
</tr>
<tr>
<td>45</td>
<td>Turning to Brown</td>
<td>45</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>Brown</td>
<td>60</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td>75</td>
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</tr>
<tr>
<td>300</td>
<td></td>
<td>300</td>
<td>300</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusion: Changed to orange and then to brown over 1 minute, which on the color chart signals amphetamines- NIK-U is next: see 17KA15, NIK-A worked well here.

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
NIK Test U - for Methamphetamine and MDMA (Ecstasy)

MODEL: 800-6087 SKU: 1006165 PART: 800-6087

Contents:
- Ampoule 1 Aq. Sodium Carbonate, 10%
- Ampoule 1 Acetaldehyde, 25%
- Ampoule 3 Sodium Nitroferricyanide, 5%

Sodium Nitroferricyanide Reagent for the detection of Methamphetamine and MDMA (Ecstasy)

Description: A positive result is obtained after a brown or violet result in Test A. Test A should always be used prior to Test U, as color results for Methamphetamine, Amphetamine and MDMA Ecstasy can be very similar.

Procedure: NIK-U.v1 (by Dave Symonsbegen on 11/06/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. After 30 seconds, repeat Steps 5-8 with Ampoule 2, and then after another 30 seconds with Ampoule 3.
10. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
11. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-U Methamphetamine (R-Deoxyephedrine) SIAL 17KA15
Date: 11/6/2017
Person: Dave Symonsbegen
Experiment: 17KA15
Substance: (-)-Deoxyephedrine
Source: Sigma-Adrich
Item Number: D6787-1g
Lot Number: 087K0683V
Sample Class: Liquid, 1mg/mL in MeOH
Sample Color: Colorless
Qty to Test: Absorbed onto Analytical Filter Paper

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Faint Orange</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>Darkening</td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td>Light Orange</td>
<td>30</td>
</tr>
<tr>
<td>45</td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>60</td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>75</td>
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</tr>
<tr>
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<td>120</td>
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<tr>
<td>240</td>
<td></td>
<td>240</td>
</tr>
<tr>
<td>300</td>
<td></td>
<td>300</td>
</tr>
</tbody>
</table>

CONCLUSION: Blue color after Ampoule 3 indicates Methamphetamine which is correct; and the NIK-A [17KA14] did give the correct string of orange changing to brown. This test worked well.
NIK Test A - General Screening

MODEL: 800-6071 SKU: 1006149 PART: 800-6071
NIK-G SDS http://sds.chemtel.net/webclients/safariland/archive/NIK%206413%20Cocaine%20and%20Free%20Base%20MSDS.pdf
Name: Marquis Reagent, 1 Ampoule

Contents:

Ampoule 1 Con. Sulfuric Acid, 95%
Ampoule 2 40% Aq. Formaldehyde, 5%

Marquis Reagent - This reagent presumptively identifies Opium Alkaloids, Heroin and Amphetamine type compounds and as a general screening agent for other drugs

Description - A rapidly developing purple or blue-violet color indicates Opium alkaloids (Morphine or Codeine) or Heroin. An immediate orange color rapidly turning to a brown color indicates Amphetamine-type compounds. Refer to Polytesting Chart for other color results.

Procedure: NIK-G.v1 (by Dave Symonsberg on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-A Methylphenidate-HCl SIAL 17KA10
Date: 11/6/2017
Person: Dave Symonsbegen

Substance: Methylphenidate Hydrochloride, >98%
Source: Sigma-Adrich
Item Number: M2892-100mg
Lot Number: SLBC5875V
Sample Class: Powder
Sample Color: White
Qty to Test: Analytical spatula

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Colorless</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>45</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>60</td>
<td>60</td>
<td>PINK</td>
</tr>
<tr>
<td>75</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>90</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>120</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>180</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>240</td>
<td>240</td>
<td>240</td>
</tr>
<tr>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
</tbody>
</table>

Conclusion: No color change after 5 minutes. Added 10x the amount to this pouch and it turned light orange over 4 minutes. Would lead to NIK-G after No Color Change in 5 minutes. Ran NIK-U [17KA11] for amphetamine purple color.

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
NIK Test G - for Cocaine

MODEL: 800-6077 SKU: 1006155 PART: 800-6077
Name: Modified Scott Reagent, 3 Ampoules

Contents:

| Ampoule 1 | Cobalt Thiocyanate, 1% |
| Ampoule 1 | Glycerol, 40-60% |
| Ampoule 1 | Boric Acid, 1% |
| Ampoule 1 | Tartaric Acid, 1% |
| Ampoule 1 | Hydrochloric Acid, 90% |
| Ampoule 1 | Chloroform, >90% |

Modified Scott Reagent - A test for Cocaine, Crack, or Free Base.

Description - Blue or pink with blue speckles after breaking the first Ampoule, a blue flash followed by a pink result after breaking the second Ampoule, and a pink layer over a blue layer after breaking the third Ampoule. NOTE: All color changes are necessary for a preemptive positive test.

Procedure: NIK-G.vi (by Dave Symonsbergen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Repeat Steps 5-8 with Ampoule 2, and then with Ampoule 3.
10. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
11. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-G Methylphenidate (Ritalin) SIAL 17KA34

Date: 11/13/2017
Person: Dave Symonsbergen
Experiment: 17KA34
Substance: Methylphenidate
Source: Sigma-Adrich
Item Number: M2892-100mg
Lot Number: SLBC5875V
Sample Class: Powder
Sample Color: White
Qty to Test: Analytical spatula

<table>
<thead>
<tr>
<th>TIME (Sec)</th>
<th>COLOR &amp; NOTES</th>
<th>TIME (Sec)</th>
<th>COLOR &amp; NOTES</th>
<th>TIME (Sec)</th>
<th>COLOR &amp; NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Stayed Pink, no Color Change</td>
<td>15</td>
<td>Blue flash, fades fast to pink</td>
<td>15</td>
<td>Gets hazy looks pink</td>
</tr>
<tr>
<td>30</td>
<td>Pink</td>
<td>30</td>
<td>Pink</td>
<td>30</td>
<td>Pink over colorless</td>
</tr>
<tr>
<td>45</td>
<td></td>
<td>45</td>
<td></td>
<td>45</td>
<td>Top pink, bottom colorless</td>
</tr>
<tr>
<td>60</td>
<td></td>
<td>60</td>
<td></td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td>75</td>
<td></td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>90</td>
<td></td>
<td>90</td>
<td></td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>120</td>
<td></td>
<td>120</td>
<td></td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>180</td>
<td></td>
<td>180</td>
<td></td>
<td>180</td>
<td></td>
</tr>
<tr>
<td>240</td>
<td></td>
<td>240</td>
<td></td>
<td>240</td>
<td></td>
</tr>
<tr>
<td>300</td>
<td></td>
<td>300</td>
<td></td>
<td>300</td>
<td></td>
</tr>
</tbody>
</table>

Conclusion: NIK-A gave no color change leading to NIK-G here. Pink over colorless is negative for cocaine, and the no color change leads straight down on the Color Chart to NIK-I. See [17KA35].

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sc.i 2:5, 81-137
NIK Test I - Screening of PMA, Ketamine, Barbituates, & Methadone

MODEL: 800-6089 SKU: 1006167 PART: 800-6089
WEBSITE: http://www.safariland.com/products/forensics/field-drug-tests/nik-test-i--pma-ketamine-barbiturates-and-methadone-
Name: Modified Scott Reagent, 3 Ampoules

Contents:
- Ampoule 1 Cobalt Thiocyanate, 1%
- Ampoule 1 Sodium Nitrite, 2-8%

Lieberman's Reagent - For the general screening of PMA, Ketamine, Barbituates, & Methadone.
Description - This test is used after a Brown result in NIK-A, or a clear result in NIK-A followed by a no change result NIK-G.

Procedure: NIK-I.v1 (by Dave Symonsbergen on 11/13/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-I Methylphenidate (Ritalin) SIAL 17KA35

Date: 11/13/2017
Person: Dave Symonsbergen
Experiment: 17KA35
Substance: Methylphenidate Hydrochloride
Source Sigma-Adrich
Item Number M2892-100mg
Lot Number SLBC5875V
Sample Class: Powder
Sample Color: White
Qty to Test: Analytical spatula

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Solid turned yellow, Liquid is clear/colorless</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td>Pink</td>
<td>30</td>
</tr>
<tr>
<td>45</td>
<td>Same</td>
<td>45</td>
</tr>
<tr>
<td>60</td>
<td>Same</td>
<td>60</td>
</tr>
<tr>
<td>75</td>
<td>Same</td>
<td>75</td>
</tr>
<tr>
<td>90</td>
<td>Same</td>
<td>90</td>
</tr>
<tr>
<td>120</td>
<td>Same</td>
<td>120</td>
</tr>
<tr>
<td>180</td>
<td>Same</td>
<td>180</td>
</tr>
<tr>
<td>240</td>
<td>Same</td>
<td>240</td>
</tr>
<tr>
<td>300</td>
<td>Same</td>
<td>300</td>
</tr>
</tbody>
</table>

Conclusion: No Color Change = No purple color, no orange color so next is straight down on the Color Chart to NIK-W. See [17KA36].
NIK Test I - Screening of PMA, Ketamine, Barbituates, & Methadone

**MODEL:**
800-6088 SKU: 1006166 PART: 800-6088

**WEBSITE:**
http://www.safariland.com/products/forensics/field-drug-tests/NIK-test-W---amphetamines-and-methadone-
1006166.html&start=33#sm.001hvgb531c3cului6bghji2nlyln

**NIK-G SDS**
http://sds.chemtel.net/webclients/safariland/archive/NIK%20Public%20Safety%20%20Test%20W%20Methadone-

**Name:**
Mandelin Reagent, 1 Ampoule

**Contents:**
- **Ampoule 1** Con. Sulfuric Acid, 99%
- **Ampoule 2** Ammonium Metavanadate, 1%

**Mandelin Reagent** - For the presumptive identification of Amphetamines and Methadone, as well as screening for PMA and Ketamine in conjunction.

**Description** - A rapidly developing blue color indicates the presence of Methadone. An immediate olive green color indicates the presence of Amphetamines.

**Procedure: NIK-I.v1** (by Dave Symonsbegen on 11/13/17)

1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

**Experiment: NIK-W Methylphenidate (Ritalin) SIAL 17KA36**

**Date:** 11/13/2017

**Person:** Dave Symonsbegen

**Experiment:** 17KA36

**Substance:** Methylphenidate Hydrochloride

**Source:** Sigma-Adrich

**Item Number:** M2892-100mg

**Lot Number:** SLBC5875V

**Sample Class:** Powder

**Sample Color:** White

**Qty to Test:** Analytical spatula

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>No color change - it stayed the same yellow color it started</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
<td>45</td>
</tr>
<tr>
<td>30</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>45</td>
<td>45</td>
<td>75</td>
</tr>
<tr>
<td>60</td>
<td>Same</td>
<td>90</td>
</tr>
<tr>
<td>75</td>
<td>75</td>
<td>120</td>
</tr>
<tr>
<td>90</td>
<td>90</td>
<td>180</td>
</tr>
<tr>
<td>120</td>
<td>120</td>
<td>240</td>
</tr>
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<td>180</td>
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<td>240</td>
<td>300</td>
</tr>
<tr>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
</tbody>
</table>

**Conclusion:** No Color Change = No blue color, no olive green color so next is left on the Color Chart to NIK-J. See [17KA37].

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
NIK Test J - for PCP

MODEL: 800-6079 SKU: 1006157 PART: 800-6079
NIK-G SDS
Name: PCP Reagent System, 3 Ampoules

Contents:

<table>
<thead>
<tr>
<th>Ampoule 1</th>
<th>Ampoule 2</th>
<th>Ampoule 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water, 100%</td>
<td>Cobalt Thiocyanate, 1-2%</td>
<td>Glycerol, 50-60%</td>
</tr>
<tr>
<td>Glycerol, 50-60%</td>
<td>Phosphoric Acid, 90%</td>
<td></td>
</tr>
<tr>
<td>Water, 40-50%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PCP Reagent System - A test Phenacyclidine: NIK-J is used after no results are obtained with NIK-A, NIK-G, NIK-I, & NIK-W.

Description - No color change after breaking Ampoule 1. Blue or pink with blue speckles after breaking Ampoules 2 & 3.

Procedure: NIK-I.v1 (by Dave Symonsbegen on 11/13/17)

1 - Classify the material to be tested: pill, powder, plant, or liquid.
2 - Note the color of the material.
3 - Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4 - Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5 - With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6 - Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7 - Note the color changes and how many seconds have passed for each color change.
8 - Record the color changes on the time chart in the experimental section.
9 - Repeat Steps 5-8 with Ampoule 2, and then with Ampoule 3.
10 - Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
11 - For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-W Methylphenidate (Ritalin) SIAL 17KA36

Date: 11/13/2017
Person: Dave Symonsbegen
Experiment: 17KA37
Substance: Methylphenidate Hydrochloride
Source: Sigma-Adrich
Item Number: M2892-100mg
Lot Number: SLBC5875V
Sample Class: Powder
Sample Color: White
Qty to Test: Analytical spatula

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Colorless, solid undissolved</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>20-sec. solid dissolves</td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td>Colorless</td>
<td>30</td>
</tr>
<tr>
<td>45</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>60</td>
<td>60</td>
<td>Pink, no blue speckles</td>
</tr>
<tr>
<td>75</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>90</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>120</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>180</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>240</td>
<td>240</td>
<td>240</td>
</tr>
<tr>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
</tbody>
</table>

Conclusion: NIK-A, G, I & W gave no color change leading to NIK-J here. Resulting pink is no color change which leads left on the Color Chart to NIK-R. See [17KA38].

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sc 2:5, 81-137
NIK Test R - for Valium, Rohypnol, and Methcathinone

MODEL: 800-6086 SKU: 1006164 PART: 800-6086

Name: Dinitrobenzene Test, 2 Ampoules

Contents:

| Ampoule 1 | Isopropanol, >95% |
| Ampoule 2 | Sodium Hydroxide, <1% |
| Ampoule 3 | Isopropanol, >95% |

Dinitrobenzene Test - A test for Valium, Rohypnol, and Methcathinone: NIK-R is used after no results are obtained with NIK-A, NIK-G, NIK-I, NIK-W & NIK-J
Description - A lavender color after breaking both Ampoules

Procedure: NIK-I.v1 (by Dave Symonsbegen on 11/13/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Repeat Steps 5-8 with Ampoule 2, and then with Ampoule 3.
10. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
11. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

<table>
<thead>
<tr>
<th>AMPoule 1</th>
<th>AMPoule 2</th>
<th>AMPoule 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Cloudy white, solid undissolved</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>45</td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>60</td>
<td>No Change</td>
<td>60</td>
</tr>
<tr>
<td>75</td>
<td></td>
<td>75</td>
</tr>
<tr>
<td>90</td>
<td></td>
<td>90</td>
</tr>
<tr>
<td>120</td>
<td></td>
<td>120</td>
</tr>
<tr>
<td>180</td>
<td></td>
<td>180</td>
</tr>
<tr>
<td>240</td>
<td></td>
<td>240</td>
</tr>
<tr>
<td>300</td>
<td></td>
<td>300</td>
</tr>
</tbody>
</table>

Conclusion: NIK-A, G, I, W & J gave no color change leading to NIK-R here. Resulting pink is no color purple or lavender color so no Valium or Rohypnol- negative result leads down on the Color Chart to NIK-O. See [17KA39].

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
NIK Test O - Screening of GHB

Model: 800-6090 SKU: 1006168 PART: 800-6090
Website: http://www.safariland.com/products/forensics/field-drug-tests/nik-test-o--ghb-1006168.html#sm.oorhvgb53x3cuiu6bighi2nlylm
NIK-G SDS http://sds.chemtel.net/webclients/safariland/archive/NIK%20Public%20Safety%20%20%20Test%20%20%20GHB.pdf

Name: Schweppes Reagent / Dye Testing, 1 Ampoule

Contents:

<table>
<thead>
<tr>
<th>Ampoule 1</th>
<th>Water, 45-55%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ampoule 2</td>
<td>Ethanol, 40-50%</td>
</tr>
<tr>
<td>Ampoule 2</td>
<td>Aniline HCl, &lt;1%</td>
</tr>
</tbody>
</table>

Mandelin Reagent - For the presumptive identification of Amphetamines and Methadone, as well as screening for PMA and Ketamine in conjunction with Test I.

Description - A rapidly developing blue color indicates the presence of Methadone. An immediate olive green color indicates the presence of Amphetamines.

Procedure: NIK-I.v1 (by Dave Symonsbergen on 11/13/17)

1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-W Methylphenidate (Ritalin) SIAL 17KA36

Date: 11/13/2017
Person: Dave Symonsbegen
Experiment: 17KA38
Substance: Methylphenidate Hydrochloride
Source: Sigma-Adrich
Item Number: M2892-100mg
Lot Number: SLBC5875V
Sample Class: Powder
Sample Color: White
Qty to Test: Analytical spatula

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME</td>
<td>COLOR &amp; NOTES</td>
<td>TIME</td>
</tr>
<tr>
<td>(Sec)</td>
<td></td>
<td>(Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Immediately the orange changed to yellow</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>45</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>60</td>
<td>Same yellow</td>
<td>60</td>
</tr>
<tr>
<td>75</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>90</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>120</td>
<td>Same yellow</td>
<td>120</td>
</tr>
<tr>
<td>180</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>240</td>
<td>Same yellow; no green formed</td>
<td>240</td>
</tr>
<tr>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
</tbody>
</table>

Conclusion: NIK-A, C, I, W, J & R gave no color change leading to NIK-O here. Resulting yellow is no color green color so no GHB preent. Net result of all testing = 7 tests showed there is no illegal narcotic.

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
NIK Test A - General Screening

MODEL: 800-6071 SKU: 1006149 PART: 800-6071
Name: Marquis Reagent, 1 Ampoule

Contents:
Ampoule 1 Con. Sulfuric Acid, 95%
Ampoule 2 40% Aq. Formaldehyde, 5%

**Mandelin Reagent** - This reagent presumptively identifies Opium Alkaloids, Heroin and Amphetamine type compounds and as a general screening agent for other drugs.
Description - A rapidly developing purple or blu-violet color indicates Opium alkaloids (Morphine or Codeine) or Heroine. An immediate orange color rapidly turning to a brown color indicates Amphetamine-type compounds. Refer to Polytesting Chart for other color results.

**NIK-A Thebaine (ParaMorphine) SIAL 17KA16**
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

**Experiment: NIK-A Thebaine (ParaMorphine) SIAL 17KA16**
Date: 11/6/2017
Person: Dave Symonsbegen
Experiment: 17KA16
Substance: Thebaine
Source: Sigma-Adrich
Item Number: T2019-1g
Lot Number: 058K1220V
Sample Class: Powder
Sample Color: Yellow (First one from SIAL that’s yellow)
Qty to Test: Analytical spatula

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Light Orange</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>Darkening</td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td>Orange</td>
<td>30</td>
</tr>
<tr>
<td>45</td>
<td>Dark Orange</td>
<td>45</td>
</tr>
<tr>
<td>60</td>
<td>Dark Orange</td>
<td>60</td>
</tr>
<tr>
<td>75</td>
<td></td>
<td>75</td>
</tr>
<tr>
<td>90</td>
<td>Dark Orange</td>
<td>90</td>
</tr>
<tr>
<td>120</td>
<td></td>
<td>120</td>
</tr>
<tr>
<td>180</td>
<td></td>
<td>180</td>
</tr>
<tr>
<td>240</td>
<td></td>
<td>240</td>
</tr>
<tr>
<td>300</td>
<td>No Brown/No Purple</td>
<td>300</td>
</tr>
</tbody>
</table>

**IN THE OPIOID CLASS:**
This one leads to Test B- See results for Experiment [17KA17] that neither Methadrome or Mescaline are confirmed. NULL result [17KA17]
If neither confirmed, then end result is no drug present.
This Sequence is Super for Showing There is No Biologically Stimulating Compound.

**Conclusion:** Changed to light orange and darkened to orange at 30 sec, kept darkening in darker orange at 2 min and stopped- no brown as is common with amphetamines that start orange and turn brown. No purple at all which is typical of the opiates. Based on the colorimetric outcome, Thebaine would lead on the Color Chart to Test NIK-B which would ultimately discriminate against either Methedrine or Mescaline.

NOTE: Opiates: Heroin has 2 free-OH, and Morphine 1 free-OH. Thebaine has both OH’s methylated and therefore cannot chemically give the expected Opiate color change(s) Accordingly, just like the color test, Thebaine will not give an opioid-like response in the body because both reactive sites are tied up (methylated).

Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
NIK Test B - Nitric Acid Reagent, General Screening Drug Test

**MODEL:** 800-6072 SKU: 1006150 PART: 800-6072

**WEBSITE:** http://www.safariland.com/products/forensics/field-drug-tests/nik-test-b-general-screening-1006150.html


**AMPOULE 1** Nitric Acid, 50-100%

**Nitric Acid Reagent** - Secondary screening test for the confirmation of Opiates (Morphine, Heroin, or Codeine) and Amphetamine-type compounds, as well as a general screening test for other drugs.

**Description** - A yellow color slowly changing to light green indicates Heroin. An orange color changing very rapidly to red and then slowly to yellow indicates Morphine. An orange color changing slowly to yellow indicates Codeine.

**Procedure: NIK-B.v1** (by Dave Symonsbergen on 11/06/17)

1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tape gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

**Experiment:** NIK-B Thebaine (Paramorphine) SIAL 17KA17

**Date:** 11/6/2017

**Person:** Dave Symonsbegen

**Experiment:** 17KA17

**Substance:** Thebaine

**Source:** Sigma-Adrich

**Item Number:** T2019-1g

**Lot Number:** 058K1220V

**Sample Class:** Powder

**Sample Color:** Yellow (First one from SIAL that’s yellow)

**Qty to Test:** Analytical spatula

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Pale Yellow</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>Pale Yellow</td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td>Pale Yellow</td>
<td>30</td>
</tr>
<tr>
<td>45</td>
<td>Pale Yellow</td>
<td>45</td>
</tr>
<tr>
<td>60</td>
<td>Pale Yellow</td>
<td>60</td>
</tr>
<tr>
<td>75</td>
<td>Pale Yellow</td>
<td>75</td>
</tr>
<tr>
<td>90</td>
<td>Pale Yellow</td>
<td>90</td>
</tr>
<tr>
<td>120</td>
<td>Pale Yellow</td>
<td>120</td>
</tr>
<tr>
<td>180</td>
<td>Pale Yellow</td>
<td>180</td>
</tr>
<tr>
<td>240</td>
<td>Pale Yellow</td>
<td>240</td>
</tr>
<tr>
<td>300</td>
<td>Pale Yellow</td>
<td>300</td>
</tr>
</tbody>
</table>

**Conclusion:** NIK-A test [17KA16] stayed orange which lead to this NIK-B test to discriminate either Methedrine [no color change] or Mescaline [Red color change], but the pale yellow here is neither, indicating no drug present. For the NIK-B as a general drug screener, the pale yellow is indicative of the opiates, which is correct.
NIK Test K - Opiate Family

Contents:
Ampoule 1 Con. Sulfuric Acid, 90%
Ampoule 2 37% Aq. Formaldehyde, 1%

Marquis Reagent Derivation - For the presumptive identification of Heroin, Black Tar, Codeine and Morphine. Easier to distinguish between the four Opiates than using Test B. This test can also be used to screen out Methaprylene and Propoxyphene.

Description - An immediate green color changing to purple indicated Heroin. An immediate blue-green color changing to gray color indicated Morphine. An immediate stable blue color indicates Codeine.

Procedure: NIK-K.v1 (by Dave Symonsbergen on 11/06/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Conclusion: Immediate brown color with Ampoule 1 that did not change- it stayed the dark brown without change after 5 minutes. Indicates no Heroin, Morphine, or Codeine present which is correct.
NIK Test L - Heroin: White, Brown, Black Tar

MODEL: 800-6081 SKU: 1006159 PART: 800-6081
Name: Marquis Reagent Family, 1 Ampoule

Contents:
Ampoule 1 Con. Sulfuric Acid, 95%
Ampoule 2 37% Aq. Formaldehyde, 1%
Ampoule 2 Selenious Acid, 1%

Marquis Reagent Derivation - This reagent presumptively identifies Heroin in all forms, including White, Brown and Black Tar, as well as MDMA Ecstasy, as well as detecting the presence of certain dye combinations designed to give false positives with Test A.

Description - A purple color after breaking the first amuole indicates MDMA (Ecstasy). A green color after breaking the second Ampoule that intensifies with prolonged agitation indicates Heroin.

Procedure: NIK-L.v1 (by Dave Symonsbergen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, break the glass by squeezing the center of the ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.
11. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-L 17KA40 Thebaine SIAL
Date: 11/13/2017
Person: Dave Symonsbegen
Experiment: 17KA40
Substance: Thebaine
Source: Sigma-Adrich
Item Number: T2019-1g
Lot Number: 058K1220V
Sample Class: Powder
Sample Color: Yellow (First one from SIAL that’s yellow)
Qty to Test: Analytical spatula

<table>
<thead>
<tr>
<th>TIME (Sec)</th>
<th>COLOR &amp; NOTES</th>
<th>TIME (Sec)</th>
<th>COLOR &amp; NOTES</th>
<th>TIME (Sec)</th>
<th>COLOR &amp; NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Immediate brown- undissolved solids are brown</td>
<td>0</td>
<td>N/A</td>
<td>0</td>
<td>No change</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>45</td>
<td>45</td>
<td>60</td>
<td>No change</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>75</td>
<td>75</td>
<td>99</td>
<td>99</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>180</td>
<td>180</td>
<td>180</td>
<td>240</td>
<td>240</td>
<td>240</td>
</tr>
<tr>
<td>300</td>
<td>300</td>
<td>300</td>
<td>No change</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusion: Immediate brown color with Ampoule 1 that did not change- it stayed the dark brown without change after 5 minutes. Indicates no Heroin, Morphine, or Codeine present which is correct.
NIK Test A - General Screening

MODEL: 800-6071 SKU: 1006149 PART: 800-6071
NIK-G SDS http://sds.chemtel.net/webclients/safariland/archive/NIK%206413%20Cocaine%20and%20Free%20Base%20MSDS.pdf
Name: Marquis Reagent, 1 Ampoule

Contents:
- Ampoule 1 Con. Sulfuric Acid, 95%
- Ampoule 1 40% Aq. Formaldehyde, 5%

Marquis Reagent - This reagent presumptively identifies Opium Alkaloids, Heroin and Amphetamine type compounds and as a general screening agent for other drugs
Description - A rapidly developing purple or blue-violet color indicates Opium alkaloids (Morphine or Codeine) or Heroin. An immediate orange color rapidly turning to a brown color indicates Amphetamine-type compounds. Refer to Polytesting Chart for other color results.

Procedure: NIK-G.VI (by Dave Symonsbegen on 10/05/17)
1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
10. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fissing to subside, reseal, and dispose of the pouch.

Experiment: NIK-A THC Tetrahydrocannabinol SIAL 17KA28
Date: 10/5/2017
Person: Dave Symonsbegen
Experiment: 17JA28
Substance: Tetrahydrocannabinol, 1mg/mL in MeOH
Source: Sigma-Aldrich
Item Number: T4764-1mL Solution
Lot Number: 118K8709
Sample Class: Yellow Liquid Solution (almost empty- added MeOH so could run test = very dilute)
Sample Color: MeOH so could run test = very dilute
Qty to Test: Absorbed onto Analytical Filter Paper

<table>
<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
<td>TIME (Sec)</td>
</tr>
<tr>
<td>0</td>
<td>Paper Yellow, Liquid Colorless</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>30</td>
<td>Colorless</td>
<td>30</td>
</tr>
<tr>
<td>45</td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>60</td>
<td>Faint yellow as Paper leaching yellow into the liquid</td>
<td>60</td>
</tr>
<tr>
<td>75</td>
<td></td>
<td>75</td>
</tr>
<tr>
<td>90</td>
<td></td>
<td>90</td>
</tr>
<tr>
<td>120</td>
<td></td>
<td>120</td>
</tr>
<tr>
<td>180</td>
<td></td>
<td></td>
</tr>
<tr>
<td>240</td>
<td></td>
<td></td>
</tr>
<tr>
<td>300</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusion: No color change- test was very dilute as the 1mg/mL vial was essentially empty. Paper was yellow and solution colorless initially, the at 60 seconds the liquid went to faint yellow as the paper was leaching yellow to the liquid.
NIK Test E - for Marijuana and Hashish

MODEL: 800-6075 SKU: 1006153 PART: 800-6075
Name: Duquenois-Levine Reagent

Contents:
Ampoule 1  Ampoule 2  Ampoule 3
Ethanol, 90%  Hydrochloric Acid, 100%  Chlorororm, 100%
Vanillan, 5%  
Acetaldehyde, 1%  

Duquenois-Levine Reagent - Stand alone test for Marijuana, Hashish, and Hash Oil

Description - No color change after breaking the first Ampoule; a dark blue or violet after breaking the second Ampoule; and a grey upper layer over a violet layer upon breaking the third Ampoule.

NOTE: Agitate Ampoule 1 for 60 SECONDS, then break Ampoule 2 - as the color forms break Ampoule 3 to halt color over-development.

1 - Classify the material to be tested: pill, powder, plant, or liquid.
2 - Note the color of the material.
3 - Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4 - Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5 - With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6 - Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7 - Note the color changes and how many seconds have passed for each color change.
8 - Record the color changes on the time chart in the experimental section.
9 - After 30 seconds, repeat Steps 5-8 with Ampoule 2, and then break Ampoule 3 after purple forms to halt the test and prevent color oversaturation.
10 - Once the test is complete, take a photo of the pouch against a white background as evidence of the results
11 - For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

<table>
<thead>
<tr>
<th>TIME (Sec)</th>
<th>COLOR &amp; NOTES</th>
<th>TIME (Sec)</th>
<th>COLOR &amp; NOTES</th>
<th>TIME (Sec)</th>
<th>COLOR &amp; NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Paper Yellow, Liquid Colorless</td>
<td>0</td>
<td>Colorless</td>
<td>0</td>
<td>Gets hazy looks pink</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
<td>30</td>
<td>30</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>60</td>
<td>Faint Yellow as Paper leaching yellow into the liquid</td>
<td>60</td>
<td>Faint pink forming</td>
<td>60</td>
<td>Layer separation hindered by glass shards</td>
</tr>
<tr>
<td>75</td>
<td>75</td>
<td>90</td>
<td>90</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>180</td>
<td>180</td>
<td>240</td>
<td>240</td>
<td>300</td>
<td>300</td>
</tr>
</tbody>
</table>

Conclusion: Test was very dilute as the 1mg/mL vial was essentially empty so test afforded a pink color rather than purple- added MeOH to vial to get enough to absorb on paper. Glass shards hindered good layer formation after
NIK Test E - for Marijuana and Hashish

**MODEL:** 800-6075 SKU: 1006153 PART: 800-6075


**Name:** Duquenois-Levine Reagent

**Contents:**
- **Ampoule 1**  Ethanol, 90%
- **Ampoule 2**  Hydrochloric Acid, 100%
- **Ampoule 1**  Vanillan, 5%
- **Ampoule 3**  Chlorororm, 100%
- **Ampoule 1**  Acetaldehyde, 1%

**Procedure:** NIK-E.v1 (by Dave Symonsbegen on 11/06/17)

**NOTE:** Agitate Ampoule 1 for 60 SECONDS, then break Ampoule 2 - as the color forms break Ampoule 3 to halt color over-development.

1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. - After 30 seconds, repeat Steps 5-8 with Ampoule 2, and then break Ampoule 3 after purple forms to halt the test and prevent color oversaturation.
10. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
11. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

**Conclusion:** Test was poor as officer’s first attempt utilized way too much material ~ half-gram. Everything looked gray, and the final result was a dark gray layer over a lighter gray layer. Test failed due to user error so will repeat - see [17KA30B].

<table>
<thead>
<tr>
<th><strong>AMPOULE 1</strong></th>
<th><strong>AMPOULE 2</strong></th>
<th><strong>AMPOULE 3</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TIME (Sec)</strong></td>
<td><strong>COLOR &amp; NOTES</strong></td>
<td><strong>TIME (Sec)</strong></td>
</tr>
<tr>
<td>0</td>
<td>Colorless</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>Too much material</td>
<td>15</td>
</tr>
<tr>
<td>30</td>
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Citation: Andrea E. Holmes et al. (2018), Evaluation of the NIK® test: Primary general screening test for the presumptive identification of drugs. Int J Cri & For Sci. 2:5, 81-137
## NIK Test E - for Marijuana and Hashish

**MODEL:** 800-6075 SKU: 1006153 PART: 800-6075


**Name:** Duquenois-Levine Reagent

**Contents:**
- **Ampoule 1** Ethanol, 90%
- **Ampoule 2** Hydrochloric Acid, 100%
- **Ampoule 1** Vanillan, 5%
- **Ampoule 2** Ammonia, 10%
- **Ampoule 1** Acetaldehyde, 1%
- **Ampoule 3** Chlorororm, 100%

**Duquenois-Levine Reagent** - Stand alone test for Marijuana, Hashish, and Hash Oil

**Description** - No color change after breaking the first Ampoule; a dark blue or violet after breaking the second Ampoule; and a grey upper layer over a violet layer upon breaking the third Ampoule.

### Procedure: NIK-E.v1 (by Dave Symonsbergen on 11/06/17)

**NOTE:** Agitate Ampoule 1 for 60 SECONDS, then break Ampoule 2 - as the color forms break Ampoule 3 to halt color over-development.

1. Classify the material to be tested: pill, powder, plant, or liquid.
2. Note the color of the material.
3. Determine the amount of the substance to be tested. The most common mistake is testing TOO MUCH material.
4. Remove clip and insert into the test pouch an amount of powdered suspect material that would fit inside this circle. Reseal with clip and tap gently to assure material falls to bottom of pack.
5. With the printed side facing you, from left to right break the glass by squeezing the center of the first ampoule with the tips of thumb and forefinger.
6. Start the timer and begin agitating the pouch by flicking the bottom corner - DO NOT SHAKE the pouch.
7. Note the color changes and how many seconds have passed for each color change.
8. Record the color changes on the time chart in the experimental section.
9. After 30 seconds, repeat Steps 5-8 with Ampoule 2, and then break Ampoule 3 after purple forms to halt the test and prevent color oversaturation.
10. Once the test is complete, take a photo of the pouch against a white background as evidence of the results.
11. For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

### Experiment: NIK-E THC Marijuana Crete Police 17KA30

**Date:** 11/7/2017

**Person:** Dave Symonsbergen

**Experiment:** 17KA30B

**Substance:** Marijuana

**Source:** Crete Police Deparment

**Item Number:** Bag turned in from local University

**Lot Number:** N/A

**Sample Class:** Solid

**Sample Color:** Green

**Qty to Test:** 5-6 small leaves

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<thead>
<tr>
<th>AMPOULE 1</th>
<th>AMPOULE 2</th>
<th>AMPOULE 3</th>
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<tr>
<td>TIME (Sec)</td>
<td>COLOR &amp; NOTES</td>
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**Conclusion:** Test worked well unlike Lt. Young’s first attempt [17KA30] where too much material was used. The test gives good results even when very few leaves from the plant are utilized.
NIK Test E - for Marijuana and Hashish

MODEL: 800-6075 SKU: 1006153 PART: 800-6075


Name: Duquenois-Levine Reagent

Contents:

| Ampoule 1 | Ethanol, 90% | | | | | | | Ampoule 2 | Hydrochloric Acid, 100% | | | | | | | Ampoule 3 | Chlorororm, 100% |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|

Duquenois-Levine Reagent - Stand alone test for Marijuana, Hashish, and Hash Oil

Description - No color change after breaking the first Ampoule; a dark blue or violet after breaking the second Ampoule; and a grey upper layer over a violet layer upon breaking the third Ampoule.

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10 - Once the test is complete, take a photo of the pouch against a white background as evidence of the results
11 - For cleanup add the NIK-F acid neutralizer to the pouch, wait for fizzing to subside, reseal, and dispose of the pouch.

Experiment: NIK-E THC Marijuana Pat Williams Sangre Agro Tech 17KS01

Date: 11/12/2017
Person: Pat Williams
Experiment: 17KS01
Substance: Marijuana
Source: Sangre Agro Tech (Colorado)
Item Number: N/A
Lot Number: N/A
Sample Class: Solid
Sample Color: Green
Qty to Test: 1 leaf, 3mm diameter

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<tr>
<th>TIME (Sec)</th>
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Conclusion: Pat in Colorado ran this test so only the final results were collected via photo. Gives the purple and lavender (gray) result as expected for marijuana.

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