

CHEMPROTECT AUTOINJECTORS

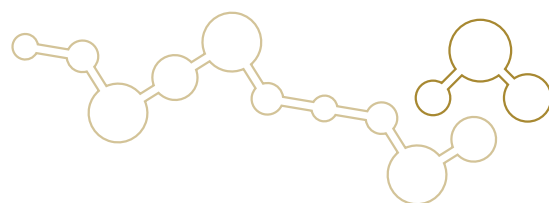
PURPOSE OF PRESENTATION

SOLDIER ANTIDOTE WHEN ATTACKED AND AFFECTED BY NERVE OR TOXIC AGENTS

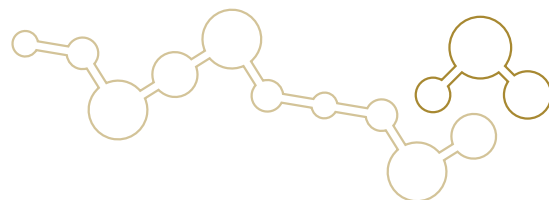




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NERVE AGENT AND ORGANOPHOSPHORUS PESTICIDE POISONING AND ITS TREATMENT

Nerve agents and organophosphorus pesticides are chemicals highly toxic to humans and other living organisms primarily for their inhibition of cholinesterases. Strong accumulation of acetylcholine at synaptic clefts in nervous system due to the irreversible inhibition of enzyme acetylcholinesterase (AChE) caused by these compounds can result in cholinergic crisis and possibly death of the intoxicated organism. For the recovery of inhibited enzyme, derivatives from the group of pyridinium or bispyridinium aldoximes (called oximes) are used. Their efficacy depends on their chemical structure and also on a type of organophosphorus inhibitor. Reactivators (pralidoxime, obidoxime, methoxime, HI-6) are usually administered in combination with anticholinergic drug (atropine) to counteract the effect of accumulated acetylcholine at cholinergic receptors and in combination with anticonvulsive drugs (diazepam) to prevent convulsions.

1. CONTENT OF ACTIVE INGREDIENTS (CHARACTERISTICS OF EFFECTIVE SUBSTANCES)

1.1. AChE REACTIVATOR

AChE reactivator is the causal antidote able to split the bond between AChE and the nerve agent or organophosphorus pesticide moiety. A released reactivated enzyme is again able to play its physiological role - hydrolyze the neurotransmitter acetylcholine. Reactivators act mainly peripherally because their ability to penetrate blood-brain barrier (BBB) is very low due to the presence of positive charge in the molecule.

ARMIES OF VARIOUS COUNTRIES USE THE FOLLOWING REACTIVATORS :

- HI-6 DMS
- Obidoxime
- Pralidoxime
- Methoxime
- Trimedoxime

1.2. ANTICHOLINERGIC

Atropine compensates the effects of nerve agents or organophosphorus pesticides on the transmission of signals in nervous system (transmission is corrupted by strong accumulation of neuromediator acetylcholine). Atropine is an anticholinergic drug (parasympatholytic). It acts predominantly peripherally and its BBB penetration is low. It is a competitive muscarinic acetylcholine receptor antagonist (interacts with types M1, M2, M3, M4 and M5). Atropine blocks the action of accumulated acetylcholine at receptors and thus prevents the formation of cholinergic crisis. It is a symptomatic antidote.



1.3. ANTICONVULSIVE

Diazepam may prevent damage of the brain, convulsions (or reduce their duration) and is also useful as an anxiolytic drug during poisoning. Diazepam is a centrally acting anticonvulsive drug. Its action enhances the effects of the neurotransmitter γ -aminobutyric acid (GABA). Diazepam binds to the benzodiazepine site of the GABAA receptor, leading to central nervous system depression.

2. CLASSIFICATION OF AUTOINJECTORS

Autoinjectors are means used for application of effective substances after poisoning by nerve agents. According to the Czech legislation, autoinjectors are classified as medical means of class IIb.

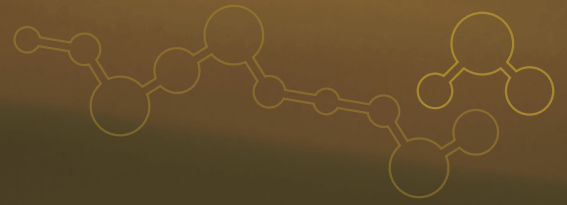
3. NORMS AND DOCUMENTS

THESE ARE THE NORMS:

- STANAG 2122
- STANAG 2126
- STANAG 2128
- STANAG 2871
- STANAG 2879
- MIL-STD-810 E (1995), MIL-STD-810-F (2000)

REQUIREMENTS OF THE NORMS OF THE MINISTRY OF DEFENCE OF THE CZECH REPUBLIC:

- Czech defence standard ČOS 05 1625
- Zdrav - 21- 2



CHEMPROTECT AUTOINJECTORS

TRIPLEPEN HAD

HI-6 dimethanesulfonate (DMS) 750 mg
of dry substance
Atropine sulfate 2 mg/2 ml
Diazepam 10 mg/2 ml

TRIPLEPEN OAD

Obidoxime dichloride 220 mg/2 ml
Atropine sulfate 2 mg/1 ml
Diazepam 10 mg/1 ml

DOUBLEPEN OA

Obidoxime dichloride 220 mg/2 ml
Atropine sulfate 2 mg/2 ml

DOUBLEPEN PA

Pralidoxime chloride 600 mg/2 ml
Atropine sulfate 2 mg/2 ml

DOUBLEPEN MA

Methoxime UNDER DEVELOPMENT
Atropine 2 mg/2 ml

SINGLEPEN D

Diazepam 10 mg/2 ml

SINGLEPEN M

Morphine hydrochloride 10 10 mg/2 ml
Morphine hydrochloride 20 20 mg/2 ml

AUTOINJECTOR FOR TRAINING

A perfect replica with the exact mechanism.
Plastic stick replacing the needle.
Can be used minimum 200 times.





4. CHEMPROTECT AUTOINJECTORS

| TRIPLEPEN | | |
|---------------|-------------------------------|-------------------------|
| TYPE | ACTIVE SUBSTANCES | WEIGHT/VOLUME |
| TRIPLEPEN HAD | HI-6 dimethanesulfonate (DMS) | 750 mg of dry substance |
| | Atropine sulfate | 2 mg/2 ml |
| | Diazepam | 10 mg/2 ml |
| TRIPLEPEN OAD | Obidoxime dichloride | 220 mg/2 ml |
| | Atropine sulfate | 2 mg/1 ml |
| | Diazepam | 10 mg/1 ml |

| DOUBLEPEN | | |
|--------------|----------------------|-------------------|
| TYPE | ACTIVE SUBSTANCES | WEIGHT/VOLUME |
| DOUBLEPEN OA | Obidoxime dichloride | 220 mg/2 ml |
| | Atropine sulfate | 2 mg/2 ml |
| DOUBLEPEN PA | Pralidoxime chloride | 600 mg/2 ml |
| | Atropine sulfate | 2 mg/2 ml |
| DOUBLEPEN MA | Methoxime dichloride | UNDER DEVELOPMENT |
| | Atropine sulfate | 2 mg/2 ml |

| SINGLEPEN | | |
|-------------|---------------------------|---------------|
| TYPE | ACTIVE SUBSTANCES | WEIGHT/VOLUME |
| SINGLEPEN D | Diazepam | 10 mg/2 ml |
| SINGLEPEN M | Morphine hydrochloride 10 | 10 mg/2 ml |
| | Morphine hydrochloride 20 | 20 mg/2 ml |



4.1. TRIPLEPEN HAD

Autoinjector is a semiautomatic injection device for the first aid in case of nerve agent (G or V) intoxication in the form of self application or mutual application (buddy aid), after donning protective mask and prior to the decontamination and delivery of medical care. The autoinjector is a part of regular health equipment of each soldier. Autoinjector delivers all drugs intramuscularly to the back muscles of thigh and is able to penetrate several layers of clothing. Autoinjector is a disposable device, intended for single dose delivery.

4.1.1. CONTENT OF THE THREE-CHAMBER AUTOINJECTOR

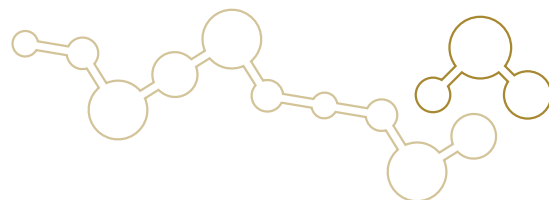
| | | |
|-------------|---|-----------|
| 1st chamber | HI-6 DMS (AChE reactivator) | 750 mg |
| 2nd chamber | Anticholinergic drug (atropine sulfate) | 2mg/2 ml |
| 3rd chamber | Anticonvulsive drug (diazepam) | 10mg/2 ml |

4.1.2. PICTURES OF TRIPLEPEN HAD



4.1.3. TECHNICAL DATA

| | |
|---------------------------------|--------|
| Autoinjector length: | 155 mm |
| Maximum diameter without cover: | 24 mm |
| Bullet length: | 80 mm |
| Maximum diameter of the bullet: | 20 mm |
| Autoinjector weight: | 78 g |
| Needle length: | 20 mm |
| Time of muscle application: | 8 s |



4.1.4. USAGE

1. Remove metal safety pin, place autoinjector against thigh muscle
2. Push safety fuse for antidote application and hold 10''
3. Remove the autoinjector from the muscle



4.1.5. AUTOINJECTOR FOR TRAINING

- A perfect replica of TRIPLEPEN HAD with the exact mechanism
- Plastic stick replacing the needle
- Can be used minimum 200 times



4.1.6. STORAGE CONDITIONS

5–25°C

4.1.7. WARRANTY

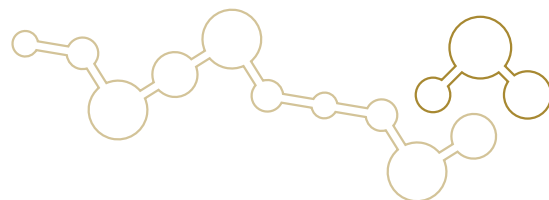
3 years

4.1.8. PACKAGING

Carton with 50 pcs



NCAGE 4167M



4.2. TRIPLEPEN OAD

Autoinjector is a semiautomatic injection device for the first aid in case of nerve agent (G or V) or organophosphorus pesticide intoxication in the form of self application or mutual application (buddy aid), after donning protective mask and prior to the decontamination and delivery of medical care. The autoinjector is a part of regular health equipment of each soldier. Autoinjector delivers all drugs intramuscularly to the back muscles of thigh and is able to penetrate several layers of clothing. Autoinjector is a disposable device, intended for single dose delivery.

4.2.1. CONTENT OF THE THREE-CHAMBER AUTOINJECTOR

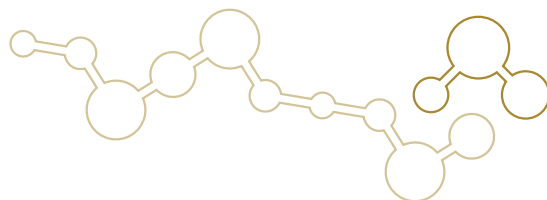
| | | |
|-------------|---|------------|
| 1st chamber | Obidoxime dichloride(AChE reactivator) | 220 mg/2ml |
| 2nd chamber | Anticholinergic drug (atropine sulfate) | 2 mg/1ml |
| 3rd chamber | Anticonvulsive drug (diazepam) | 10 mg/1ml |

4.1.2 PICTURES OF TRIPLEPEN OAD



4.2.3. TECHNICAL DATA

| | |
|---------------------------------|--------|
| Autoinjector length: | 155 mm |
| Maximum diameter without cover: | 24 mm |
| Bullet length: | 80 mm |
| Maximum diameter of the bullet: | 20 mm |
| Autoinjector weight: | 77 g |
| Needle length: | 20 mm |
| Time of muscle application: | 8 s |



4.2.4. USAGE

1. Remove metal safety pin, place autoinjector against thigh muscle
2. Push safety fuse for antidote application and hold 10''
3. Remove the autoinjector from the muscle



4.2.5. AUTOINJECTOR FOR TRAINING

- A perfect replica of TRIPLEPEN OAD with the exact mechanism
- Plastic stick replacing the needle
- Can be used minimum 200 times



4.2.6. STORAGE CONDITIONS

5–25°C

4.2.7. WARRANTY

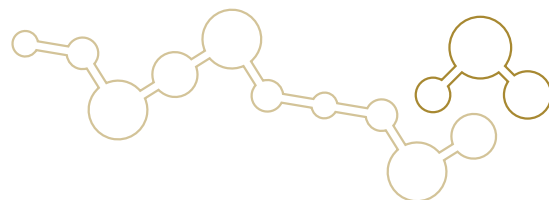
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4.2.8. PACKAGING

Carton with 50 pcs



NCAGE 4167M



4.3. DOUBLEPEN OA

Autoinjector is a semiautomatic injection device for the first aid in case of nerve agent (G or V) or organophosphorus pesticide intoxication in the form of self application or mutual application (buddy aid), after donning protective mask and prior to the decontamination and delivery of medical care. The autoinjector is a part of regular health equipment of each soldier. Autoinjector delivers all drugs intramuscularly to the back muscles of thigh and is able to penetrate several layers of clothing. Autoinjector is a disposable device, intended for single dose delivery.

4.3.1. CONTENT OF THE TWO-CHAMBER AUTOINJECTOR

| | | |
|--------------------|---|-------------|
| 1st chamber | Obidoxime dichloride (AChE reactivator) | 220 mg/2 ml |
| 2nd chamber | Anticholinergic drug (atropine sulfate) | 2 mg/2 ml |

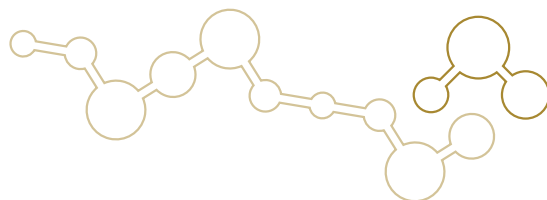
Autoinjector is composed of the body, injecting mechanism and a two-chamber ampule (bullet) filled with obidoxime and atropine which contains the injection needle. The autoinjector body is black with stripe signs for obidoxime (brown) and atropine (yellow). Autoinjector has two ring extensions for night application. All autoinjector signs are according to STANAG requirements.

4.3.2. PICTURES OF DOUBLEPEN OA



4.3.3. TECHNICAL DATA

| | |
|---------------------------------------|--------|
| Autoinjector length: | 140 mm |
| Maximum autoinjector diameter: | 24 mm |
| Bullet length (filled with antidote): | 70 mm |
| Maximum bullet diameter with closure: | 20 mm |
| Autoinjector weight: | 70 g |
| Needle length: | 20 mm |
| Application time: | 8 s |



4.3.4. USAGE

1. Remove metal safety pin, place autoinjector against thigh muscle
2. Push safety fuse for antidote application and hold 10''
3. Remove the autoinjector from the muscle



4.3.5. AUTOINJECTOR FOR TRAINING

- A perfect replica of DOUBLEPEN OA with the exact mechanism
- Plastic stick replacing the needle
- Can be used minimum 200 times



4.3.6. STORAGE CONDITIONS

5–25°C

4.3.7. WARRANTY

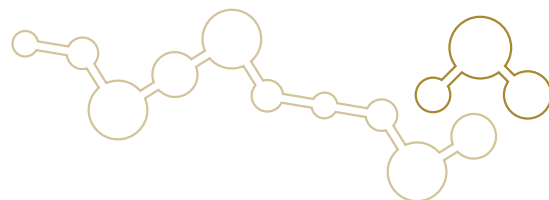
3 years

4.3.8. PACKAGING

Carton with 50 pcs



NCAGE 4167M



4.4. DOUBLEPEN PA

Autoinjector is a semiautomatic injection device for the first aid in case of nerve agent (G or V) or organophosphorus pesticide intoxication in the form of self application or mutual application (buddy aid), after donning protective mask and prior to the decontamination and delivery of medical care. The autoinjector is a part of regular health equipment of each soldier. Autoinjector delivers all drugs intramuscularly to the back muscles of thigh and is able to penetrate several layers of clothing. Autoinjector is a disposable device, intended for single dose delivery.

4.4.1. CONTENT OF THE TWO-CHAMBER AUTOINJECTOR

| | | |
|--------------------|---|-------------|
| 1st chamber | Anticholinergic drug (pralidoxime chloride) | 600 mg/2 ml |
| 2nd chamber | Anticholinergic drug (atropine sulfate) | 2 mg/2 ml |

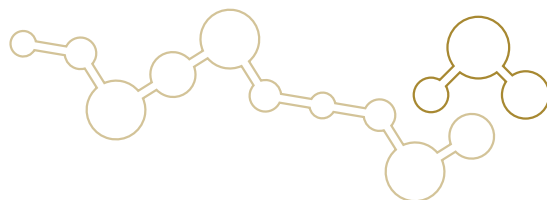
Autoinjector is composed of the body, injecting mechanism and a two-chamber ampule (bullet) with Pralidoxime and Atropine which contains the injection needle. The autoinjector body is black with stripe signs for Pralidoxime (brown) and Atropine (yellow). Autoinjector has two ring extensions for night application. All autoinjector signs are according to STANAG requirements.

4.4.2. PICTURES OF DOUBLEPEN PA



4.4.3. TECHNICAL DATA

| | |
|---------------------------------------|--------|
| Autoinjector length: | 140 mm |
| Maximum autoinjector diameter: | 24 mm |
| Bullet length (filled with antidote): | 70 mm |
| Maximum bullet diameter with closure: | 20 mm |
| Autoinjector weight: | 70 g |
| Needle length: | 20 mm |
| Application time: | 8 s |



4.4.4. USAGE

1. Remove metal safety pin, place autoinjector against thigh muscle
2. Push safety fuse for antidote application and hold 10''
3. Remove the autoinjector from the muscle



4.4.5. AUTOINJECTOR FOR TRAINING

- A perfect replica of DOUBLEPEN PA with the exact mechanism
- Plastic stick replacing the needle
- Can be used minimum 200 times



4.4.6. STORAGE CONDITIONS

5–25°C

4.4.7. WARRANTY

3 years

4.4.8. PACKAGING

Carton with 50 pcs



NCAGE 4167M



4.5. DOUBLEPEN MA

Anticholinergic for one time intramuscular application of antidote in field conditions against nerve paralytical war poison gases. Autoinjector is a part of medical equipment of each soldier, and is used for immediate self or mutual first aid.

4.5.1. DEVELOPMENT OF THE TWO-CHAMBERED AUTOINJECTOR

| | | |
|--------------------|---|-------------------|
| 1st chamber | Anticholinergic drug (methoxime dichloride) | UNDER DEVELOPMENT |
| 2nd chamber | Anticholinergic drug (atropine sulfate) | 2 mg/2 ml |

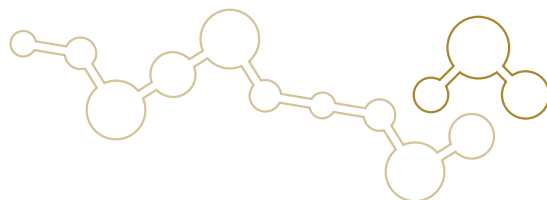
Autoinjector is composed of the body, injecting mechanism and a two-chamber ampule (bullet) with methoxi-me and atropine which contains the injection needle. The autoinjector body is black with stripe signs for methoxime (brown) and atropine (yellow). Autoinjector has two ring extensions for night application. All autoinjector signs are according to STANAG requirements.

4.5.2. PICTURES OF DOUBLEPEN MA



4.5.3. TECHNICAL DATA

| | |
|---------------------------------------|--------|
| Autoinjector length: | 140 mm |
| Maximum autoinjector diameter: | 24 mm |
| Bullet length (filled with antidote): | 70 mm |
| Maximum bullet diameter with closure: | 20 mm |
| Autoinjector weight: | 70 g |
| Needle length: | 20 mm |
| Application time: | 8 s |



4.5.4. USAGE

1. Remove metal safety pin, place autoinjector against thigh muscle
2. Push safety fuse for antidote application and hold 10''
3. Remove the autoinjector from the muscle



4.5.5. AUTOINJECTOR FOR TRAINING

- A perfect replica of DOUBLEPEN MA with the exact mechanism
- Plastic stick replacing the needle
- Can be used minimum 200 times



4.5.6. STORAGE CONDITIONS

5–25°C

4.5.7. WARRANTY

3 years

4.5.8. PACKAGING

Carton with 50 pcs



NCAGE 4167M



4.6. SINGLEPEN D

Autoinjector is a semiautomatic injection device for the first aid in case of nerve agent (G or V) or organophosphorus pesticide intoxication in the form of self application or mutual application (buddy aid), after donning protective mask and prior to the decontamination and delivery of medical care. The autoinjector is a part of regular health equipment of each soldier. Autoinjector delivers diazepam intramuscularly to the back muscles of thigh and is able to penetrate several layers of clothing. Autoinjector is a disposable device, intended for single dose delivery. Diazepam may prevent damage of the brain, convulsions (or reduce their duration) and is also useful as an anxiolytic drug during poisoning. Diazepam is a centrally acting anticonvulsive drug. It is applied after application of DOUBLE-PEN autoinjector.

4.6.1. CONTENT OF THE ONE-CHAMBER AUTOINJECTOR

| | | |
|-------------|----------|---------------|
| one chamber | Diazepam | 10 mg in 2 ml |
|-------------|----------|---------------|

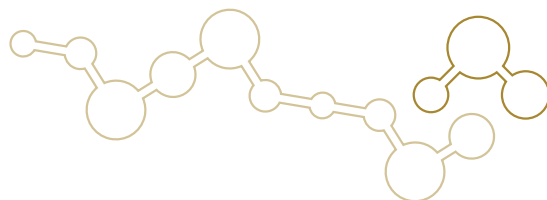
Autoinjector is composed of the body, injecting mechanism and an ampule (bullet) with diazepam which contains the injection needle. The autoinjector body is black with a stripe sign for diazepam (grey). Autoinjector has three ring extensions for night application. All autoinjector signs are according to STANAG requirements.

4.6.2. PICTURES OF SINGLEPEN D



4.6.3. TECHNICAL DATA

| | |
|---------------------------------------|--------|
| Autoinjector length: | 140 mm |
| Maximum autoinjector diameter: | 24 mm |
| Bullet length (filled with antidote): | 45 mm |
| Maximum bullet diameter with closure: | 20 mm |
| Autoinjector weight: | 60 g |
| Needle length: | 20 mm |
| Application time: | 8 s |



4.6.4. USAGE

1. Remove metal safety pin, place autoinjector against thigh muscle
2. Push safety fuse for antidote application and hold 10''
3. Remove the autoinjector from the muscle



4.6.5. AUTOINJECTOR FOR TRAINING

- A perfect replica of SINGLEPEN D with the exact mechanism
- Plastic stick replacing the needle
- Can be used minimum 200 times



4.6.6. STORAGE CONDITIONS

5–25°C

4.6.7. WARRANTY

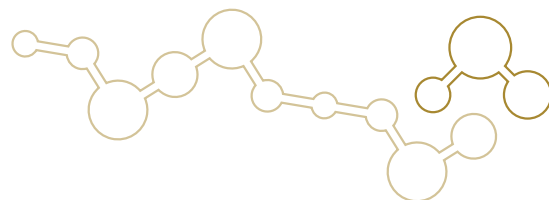
3 years

4.6.8. PACKAGING

Carton with 50 pcs



NCAGE 4167M



4.7. SINGLEPEN M

Morphine hydrochloride 10 mg in Water for Injection 2 ml.

One-chamber autoinjector for first aid (self-aid/buddy aid) in case of a strong post-traumatic pain. This single use device provides automatic intramuscular administration of morphine hydrochloride solution. The SINGLEPEN M autoinjector delivers a fixed dose of 10 mg morphine hydrochloride. Morphine is a narcotic analgesic, which is completely absorbed after intramuscular application. One autoinjector will generally provide adequate analgesia for a 70 kg (154 pounds) adult. Onset of analgesic action is usually within 7-20 minutes following the application with maximal effects observed in 1 hour. If symptoms of pain are not relieved after 30 minutes, second SINGLEPEN M may be applied. The autoinjector is not designated for repeated or long term treatment of pain. When repeated administration is necessary, one autoinjector may be applied every 4 hours as needed.

4.7.1. DEVELOPMENT OF THE ONE-CHAMBERED AUTOINJECTOR

one chamber

Morphine

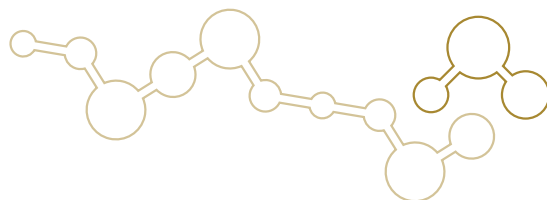
10 mg in 2 ml

4.7.2. PICTURES OF SINGLEPEN M



4.7.3. TECHNICAL DATA

| | |
|---------------------------------------|--------|
| Autoinjector length: | 140 mm |
| Maximum autoinjector diameter: | 24 mm |
| Bullet length (filled with morphine): | 45 mm |
| Maximum bullet diameter with closure: | 20 mm |
| Autoinjector weight: | 60 g |
| Needle length: | 20 mm |
| Application time: | 8 s |



4.7.4. USAGE

1. Remove metal safety pin, place autoinjector against thigh muscle
2. Push safety fuse for antidote application and hold 10''
3. Remove the autoinjector from the muscle



4.7.5. AUTOINJECTOR FOR TRAINING

- A perfect replica of SINGLEPEN M with the exact mechanism
- Plastic stick replacing the needle
- Can be used minimum 200 times



4.7.6. STORAGE CONDITIONS

5–25°C

4.7.7. WARRANTY

3 years

4.7.8. PACKAGING

Carton with 50 pcs



NCAGE 4167M