

Manual

MagnifiQ™ Genomic DNA reagents and consumables kit

A set of reagents and all necessary consumables for filling plates for the automated, magnetic isolation of DNA.

catalog#	size	compatible devices *
604D-16U-64	64 isolations	Auto-Pure 32A
604D-16V-64	64 isolations	Auto-Pure Mini
604D-16U-256	256 isolations	Auto-Pure 32A
604D-16V-256	256 isolations	Auto-Pure Mini
604D-96V-960	960 isolations	Auto-Pure 96

* Compatible devices

The kit has been tested with specific Allsheng brand isolation devices. This does not preclude it from working with other devices. If your device is not listed, please contact us at info@aabiot.com.

For research use only.

Guarantee

A&A Biotechnology provides a guarantee on this product.

The company does not guarantee the correct performance of this kit in the event of:

- not adhering to the supplied protocol
- use of not recommended equipment or materials
- use of other reagents than recommended or which are not a component of the product
- use of expired or improperly stored product or its components

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Advantages

- Automated, fast isolation.
- Enables isolation of different samples with universal kit and automated extraction programme.

Sample type

Specification

	sample size
Bacteria G-, G+ (cultures)	up to 2 x 10 ⁸
Yeast (cultures)	up to 1 ml
Cell cultures	up to 1 x 10 ⁶
Blood fresh or frozen, serum, plasma	up to 200 μl
Animal tissue	up to 20 mg
Swab	1 pc
Feces	20 - 50 mg
Feces (sample stored in conservation solution)	250 - 500 μl

~ 30 min.
50 - 100 μΙ
Tris buffer
30 μg DNA
qPCR, RT-qPCR, sequencing

Description

MagnifiQ™ Genomic DNA reagents and consumables kit is designed for DNA isolation from various types of biological materials. Kit contains reagents and all necessary consumables for filling plates. The isolated material is perfect for further analyzes and tests by qPCR and RT-PCR methods and for sequencing.

The Magnifi Q^{TM} series products are based on the automated isolation of nucleic acids with use of magnetic beads. This method significantly shortens working time and reduces risk of mistake in comparison to manual methods.

Contents

Reagents

	64	lisolations	256 isolations		960 isolations		
component	quantity	cat#	quantity	cat#	quantity	cat#	storage
MQBG binding mix	40 ml	K-MQBG-40	155 ml	K-MQBG-155	580 ml	K-MQBG-580	15-25℃
A1WI wash solution	55 ml	K-A1WI-455	225 ml	K-A1WI-225	845 ml	K-A1WI-845	15-25℃
Tris buffer	25 ml	K-TRIS-25	85 ml	K-TRIS-85	320 ml	K-TRIS-320	15-25 ℃
LSDE buffer	35 ml	K-LSDE-35	140 ml	K-LSDE-140	530 ml	K-LSDE-530	15-25℃
LTE 2X buffer	15 ml	K-LTE2X-15	55 ml	K-LTE2X-55	210 ml	K-LTE2X-210	15-25℃
Proteinase K	3 ml	K-PRK-3	12 ml	K-PRK-12	42 ml	K-PRK-42	4-8°C*

^{*} Proteinase K can be stored at 15-25 °C for up to 12 months.

Plastic consumables

	604D-16U-64		604		
component	quantity	cat#	quantity	cat#	storage
2.2 ml plate	4 pcs	K-P96U22	16 pcs	K-P96U22	15-25 ℃
tip comb 8	4 x 2 pcs	K-C8U-2	16 x 2 pcs	K-C8U-2	15-25 ℃
protective film	4 pcs	K-MQF-4	16 pcs	K-MQF-16	15-25 ℃

	604D-16V-64		604		
component	quantity	cat#	quantity	cat#	storage
2.2 ml plate	4 pcs	K-P96V22	16 pcs	K-P96V22	15-25 ℃
tip comb 8	4 x 2 pcs	K-C8U-2	16 x 2 pcs	K-C8U-2	15-25 ℃
protective film	4 pcs	K-MQF-4	16 pcs	K-MQF-16	15-25 ℃

604D-96V-960

component	quantity	cat#	storage
CP - comb plate	1 pc	K-P96V22C	15 > 30 °C
2.2 ml plate	50 pcs	K-P96V22	15 > 30 °C
0.5 ml plate	2 x 5 pcs	K-P96V05-5	15 > 30 °C
tip comb 96	5 x 2 pcs	K-C96V-2	15 > 30 °C
protective film	10 pcs	K-MQF-10	15 > 30 °C

Additional equipment and reagents

Necessary

- automated pipette
- pipette tips
- 80% ethanol (1.6 ml per sample)

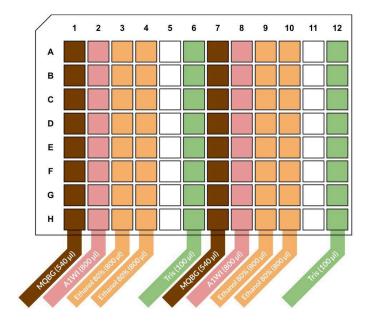
Optional

- RNAse (10 μl per sample), cat # 1006-10
- 1.5 ml Eppendorf tubes (sample lysis)
- 96 deep-well plates 2.2 ml (sample lysis)
- centrifuge with swing-out rotor for 96 deep-well plates
- vortex
- thermoblock
- protective film

Plate preparation

16 samples per plate format

Distribute the buffers into a 2.2 ml plate as shown in the diagram below:



96 samples per plate format

Distribute the buffers into a plates and mark them as shown in the diagram below:



Material preparation

1.5 ml Eppendorf tubes

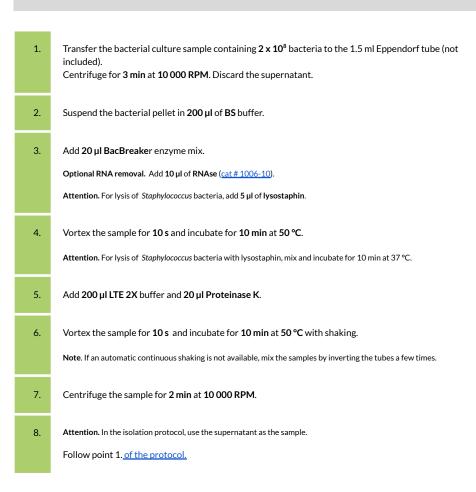
Bacteria G-, G+ (cultures)

Additional reagents you will need:

- BacBreaker bacteria lysis enzyme mix (20 μl per sample), cat # K-BACB-15A
- BS suspension buffer (200 μl per sample), cat # K-BS-30

Option:

• Lysostaphin (5 µl per sample), cat # 1007-3; For Staphylococcus aureus we recommend using lysostaphin.



Yeast (cultures)

Additional reagents you will need:

- Lyticase (10 μl per sample), cat #1018-10
- DTT RTU (10 µl 1M solution per sample), cat # 2010-10P
- BS suspension buffer (200 μl per sample), cat # K-BS-30

Prepare **1M DTT** solution. Add 1 ml of sterile water (not included) to a vial containing DTT powder to obtain 1M DTT solution. Mix or vortex until complete dissolution of DTT powder. Store a clear solution at -20 °C.

- 1. Transfer **1 ml** of yeast culture to 1.5 ml Eppendorf tube (not included). Centrifuge for **3 min** at **10 000 RPM**. Discard the supernatant.
- 2. Suspend the yeast pellet in 200 μl of BS buffer.
- Add 10 μl lyticase and 10 μl 1M DTT.
 Optional RNA removal. Add 10 μl of RNAse (cat # 1006-10).
- 4. Vortex the sample for 10 s and incubate for 15 min at 37 °C.
- 5. Add 200 µl LTE 2X buffer and 20 µl Proteinase K.
- 6. Vortex the sample for 10 s and incubate for 10 min at 50 °C with shaking.

Note. If an automatic continuous shaking is not available, mix the samples by inverting the tubes a few times.

- Centrifuge the sample for 2 min at 10 000 RPM.
- 8. Attention. In the isolation protocol, use the supernatant as the sample.

Cell cultures

1.	Transfer the cell culture sample containing 1×10^6 cells to 1.5 ml Eppendorf tube (not included). Centrifuge for 3min at $10 000 \text{RPM}$. Discard the supernatant.
2.	Suspend the cell pellet in 200 μl of Tris buffer.
3.	Add 200 µl LTE 2X buffer and 20 µl Proteinase K. Optional RNA removal. Add 10 µl of RNAse (cat # 1006-10).
4.	Vortex the sample for 10 s and incubate for 10 min at 50 °C with shaking. Note. If an automatic continuous shaking is not available, mix the samples by inverting the tubes a few times.

Blood: fresh or frozen, plasma, serum

Blood:	fresh or frozen, plasma, serum
1.	Transfer 200 μl the sample to 1.5 ml Eppendorf tube (not included).
2.	Add 200 µl LTE 2X and 20 µl Proteinase K.
3.	Vortex the sample for 10 s and incubate for 10 min at 50 °C with shaking. Note. If automatic shaking is not available, mix the samples by inverting the tubes a few times.
4.	Centrifuge for 20 s at 10 000 RPM. Note. Centrifuge to remove remaining material from lids of the tubes and deposit non-lysed material at the bottom of the tube.
5.	Attention. In the isolation protocol, use the supernatant as the sample. Follow point 1. of the protocol.

Animal tissue

1. Transfer **up to 20 mg** of fragmented animal tissue to 1.5 ml Eppendorf tube (not included).

Note. The tissue should be fragmented by cutting into pieces or homogenization.

2. Add 400 µl LSDE buffer and 40 µl Proteinase K.

Optional RNA removal. Add 10 µl of RNAse (cat # 1006-10).

3. Vortex the sample for 10 s and incubate until complete lysis at 50 °C with shaking.

Note. If an automatic continuous shaking is not available, mix the samples by inverting the tubes a few times.

Information. The lysis step can last from 1 to 12 hours. For maximum efficiency, lysis should be carried out until the tissue is completely dissolved in the lysis solution.

4. Centrifuge the sample for 2 min at 10 000 RPM.

Attention. In the isolation protocol, use the supernatant as the sample.

Follow point 1. of the protocol.

Swabs with transport medium

No additional material preparation is required.

Dry swabs

 Break or cut off part of the swab with the collected sample and place it in a 1.5 ml Eppendorf tube (not included).

Note. The portion of the swab with the collected sample should fit completely into the tube.

2. Add 500 µl of LSDE buffer and 20 µl Proteinase K.

Note. Part of the swab with the sample should be completely immersed in the buffer.

Optional RNA removal. Add 10 µl of RNAse (cat # 1006-10).

3. Vortex the sample for 10 s and incubate for 10 min at 50 °C with shaking.

Note. If an automatic continuous shaking is not available, mix the samples by inverting the tubes a few times.

4. Attention. For the isolation process, take the entire volume of the sample, but not more than 400 μl.

Feces (microbiome including G+, G-bacteria)

Additional reagents you will need:

- Bead-beat tubes (2 ml screwed Bead-beat tubes containing beads mix), cat # K-PKCM-50
- L3P precipitation solution (100 μl per sample), cat # K-L3P-60
- LSDE buffer (additional 500 μl per sample), cat # K-LSDE-500
- antifoam (10 μl per sample), cat# K-AYS-1

Before starting the process, mix the **LSDE** buffer with **antifoam**. Prepare the **LSDE-antifoam** mix by combining 1 ml of **LSDE** buffer with 10 µl of **antifoam** per sample. Prepare a volume sufficient for the number of isolated samples with a 10% excess. Mix well before use.

1. Transfer 20-50 mg of stool sample to the 2 ml screwed Bead-beat tube containing beads mix. Add 1 ml of LSDE-antifoam buffer. 2. Option A: Bead Beating. Use the suitable tube bead beater with the following programme: 3 x run of 20 s at maximum force with 2 min cool down rest. Option B: Place the tubes in the incubator with mixing function (e.g. Thermomixer) and vortex at 2000 RPM for 30 min at room temperature. 3. Centrifuge for 5 min at 10 000 RPM. 4. Transfer 500 µl of supernatant to a new 1.5 ml Eppendorf tube (not included). 5. Add 20 µl Proteinase K. 6. Vortex the sample for 10 s and incubate for 15 min at 50 °C with shaking 1400 RPM. Optional RNA removal. Add 10 µl of RNAse (cat # 1006-10) and incubate for 10 min at 37 °C with shaking at 1400 RPM. 7. Add 100 µl of L3P precipitation solution. Close the tube and mix whole content by inverting the tube. 8. Place on ice for 3 min. 9. Centrifuge the sample for 5 min at 10 000 RPM. 10. Attention. In the isolation protocol, use the supernatant as the sample. Follow point 1. of the protocol.

Feces (sample stored in conservation solution StoolSave™ DNA Protection kit)

Additional reagents you will need:

For stool samples stored in the **StoolSave™ DNA Protection kit (cat # 006-10)**:

- Bead-beat tubes (2 ml screwed Bead-beat tubes containing beads mix), cat # K-PKCM-50
- L3P precipitation solution (100 μl per sample), cat # K-L3P-60

For stool samples stored in another preservation solution:

- Bead-beat tubes (2 ml screwed Bead-beat tubes containing beads mix), cat # K-PKCM-50
- L3P precipitation solution (100 μl per sample), cat # K-L3P-60
- LSDE buffer (additional 250 µl per sample),cat # K-LSDE-500
- antifoam (10 µl per sample), cat# K-AYS-1

Feces stored in conservation solution StoolSave™ DNA Protection kit:

Transfer $500\,\mu l$ of stool sample suspended in conservation/ transportation solution to the 2 ml screwed Bead-beat tube containing zirconia beads.

Add 500 µI of LSDE buffer.

Feces stored in another preservation solution:

Before starting the process, mix the LSDE buffer with antifoam. Prepare the LSDE-antifoam mix by combining 750 µl of LSDE buffer with 10 µl of antifoam per sample. Prepare a volume sufficient for the number of isolated samples with a 10% excess. Mix well before use.

Transfer $250\,\mu l$ of stool sample suspended in conservation/ transportation solution to the 2 ml screwed Bead-beat tube containing zirconia beads.

Add **750 µI** of **LSDE-antifoam** buffer.

2. Option A: Bead Beating. Use the suitable tube bead beater with the following programme: 3 x run of 20 sec at maximum force with 1 min cool down.

Option B: Place the tubes in the incubator with mixing function (e.g. Thermomixer) and vortex at 2000 RPM for 30 min at room temperature.

- Centrifuge for 5 min at 10 000 RPM.
- 4. Transfer 500 μI of supernatant to a new 1.5 ml Eppendorf tube (not included).
- 5. Add 20 µl Proteinase K.
- 6. Vortex the sample for 10 s and incubate for 15 min at 50 °C with shaking 1400 RPM.

Optional RNA removal. Add 10 µl of RNAse (cat # 1006-10) and incubate for 10 min at 37 °C with shaking at 1400 RPM.

7. Add 100 µl of L3P precipitation solution. Close the tube and mix whole content by inverting the tube.

- 8. Place on ice for **3 min.**
- 9. Centrifuge the sample for **5 min** at **10 000 RPM**.
- 10. Attention. In the isolation protocol, use the supernatant as the sample.

96 deep-well plates 2.2 ml

Bacteria G-, G+ (cultures)

Additional reagents you will need:

- EMXB bacteria lysis enzyme mix (20 μl per sample), cat # K-EMXB-15A
- BS suspension buffer (200 µl per sample), cat # K-BS-250

Option:

• Lysostaphin (5 µl per sample), cat # 1007-3; For Staphylococcus aureus we recommend using lysostaphin.

1. Transfer the bacterial culture samples containing 2×10^8 bacteria to the 96 deep-well plate (not included).

Seal the plate with a protective film and centrifuge for $10\,min$ at $1000\,x\,g.$

Remove the protective film.

Carefully discard the supernatant with a pipette.

- 2. Suspend the bacterial pellet in 200 μl of BS buffer.
- 3. Add 20 µl EMXB enzyme mix to the wells.

Optional RNA removal. Add 10 μ l of RNAse (cat # 1006-10). Attention. For lysis of *Staphylococcus* bacteria, add 5 μ l of lysostaphin.

4. Mix the contents of the wells by pipetting.
Seal the plate with a protective film and incubate for 20 min at 55 °C with shaking 1600 RPM.
Remove the protective film.

Attention. For lysis of Staphylococcus bacteria with lysostaphin, mix and incubate for 20 min at 42°C.

- 5. Add 200 µl LTE 2X buffer and 20 µl Proteinase K to the wells.

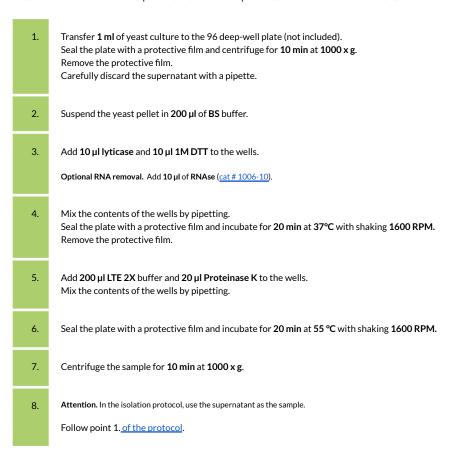
 Mix the contents of the wells by pipetting.
- 6. Seal the plate with a protective film and incubate for 20 min at 55 °C with shaking 1600 RPM.
- 7. Centrifuge the sample for 10 min at 1000 x g.
- 8. Attention. In the isolation protocol, use the supernatant as the sample.

Yeast (cultures)

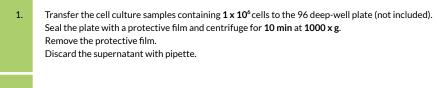
Additional reagents you will need:

- Liticase (10 μl per sample), cat #1018-10
- DTT RTU (10 μl 1M solution per sample), cat # 2010-10P
- BS suspension buffer (200 μl per sample), cat # K-BS-250

Prepare **1M DTT** solution. Add **1** ml of sterile water (not included) to a vial containing DTT powder to obtain **1M DTT** solution. Mix or vortex until complete dissolution of DTT powder. Store a clear solution at -20 °C.



Cell cultures



- 2. Suspend the cell pellet in 200 μl of Tris buffer.
- 3. Add 200 µl LTE 2X buffer and 20 µl Proteinase K to the wells.

Optional RNA removal. Add 10 µl of RNAse (cat # 1006-10).

- 4. Mix the contents of the wells by pipetting.
 Seal the plate with a protective film and incubate for 20 min at 55 °C with shaking 1600 RPM.
- 5. Follow point 1. of the protocol.

Blood: fresh or frozen, plasma, serum

- 1. Transfer **200 µl** the sample to the 96 deep-well plate (not included).
- 2. Add 200 µl LTE 2X buffer and 20 µl Proteinase K to the wells. Mix the contents of the wells by pipetting.
- 3. Seal the plate with a protective film and incubate for 20 min at 55 °C with shaking 1600 RPM.
- 4. Centrifuge for 1 min at 1000 x g.

Note. Centrifuge to remove remaining material from lids of the tubes and placement non-lysed material at the bottom of the plate.

Animal tissue

1. Transfer **up to 20 mg** of fragmented animal tissue to the 96 deep-well plate (not included).

Note. The tissue should be fragmented by cutting into pieces or homogenization.

2. Add 400 µl LSDE buffer and 40 µl Proteinase K to the wells.

Optional RNA removal. Add 10 µl of RNAse (cat # 1006-10).

3. Mix the contents of the wells by pipetting.

Seal the plate with a protective film and incubate until complete lysis at 55 °C with shaking 1600 RPM.

Information. The lysis step can last from 1 to 12 hours. For maximum efficiency, lysis should be carried out until the tissue is completely dissolved in the lysis solution.

4. Centrifuge for 10 min at 1000 x g.

Attention. In the isolation protocol, use the supernatant as the sample.

Follow point 1. of the protocol.

Swabs with transport medium

No additional material preparation is required.

Dry swabs

- 1. Break or cut off part of the swab with the collected sample and place it in the wells of 96 deep-well plate (not included).
 - 2. Add 500 µl of LSDE buffer and 20 µl Proteinase K to the wells.

 $\textbf{Note.} \ \textbf{Part} \ \textbf{of the swab with the sample should be completely immersed in the buffer.}$

Optional RNA removal. Add 10 µl of RNAse (cat # 1006-10).

- Mix the contents of the wells by pipetting.
 Seal the plate with a protective film and incubate for 20 min at 55 °C with shaking 1600 RPM.
- 4. Attention. For the isolation process, take the entire volume of the sample, but no more than 400 μl.

Protocol

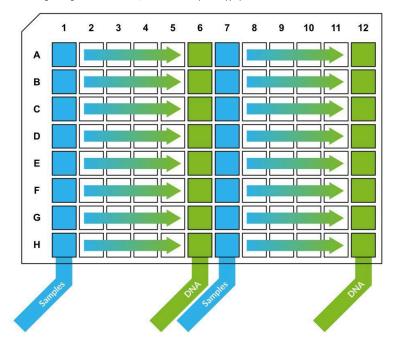
Protocol files

device	protocol name	protocol file	ins	tallation
			1.	Create folder "items" on a USB drive and copy the protocol file to it.
		aabiot.com/protocols/magnifiq	2.	Insert the USB drive into a USB slot in the device.
Auto-Pure Mini	MQ-UND-MI	/MI/MQ-UND-MI.txt	3.	On a device screen, go to Settings > System > Transfer > Import.
			4.	Select the protocol and tap "Import".
Auto-Pure Mini (QR code)	MQ-UND-MI		1. 2.	On a device screen, go to Run > \(\overline{\top} \) > \(\overline{\top} \) Scan the QR code with the device's scanner.
Auto-Pure 32A	MQ-UND-32A	aabiot.com/protocols/magnifiq	1.	Create folder "items" on a USB drive and copy the protocol file to it.
		/32A/MQ-UND-32A.txt	2.	Insert the USB drive into a USB slot in the device.
Auto-Pure 96	e 96 MQ-UND-96	aabiot.com/protocols/magnifiq /96/MQ-UND-96.txt	3.	On a device screen, go to Settings > Im.&Export > Import.
Auto-Fule 70			4.	Select the protocol and tap "Import."
Auto-Pure S32	MQ_UND_S32	aabiot.com/protocols/magnifig /S32/MQ_UND_S32.txt	1. 2. 3. 4.	Create folder "im_export_protocols" on a USB drive and copy the protocol file to it. Insert the USB drive into a USB slot in the device. On a device screen, go to Protocols >Import. Select the protocol and tap "Import".

16 samples per plate format

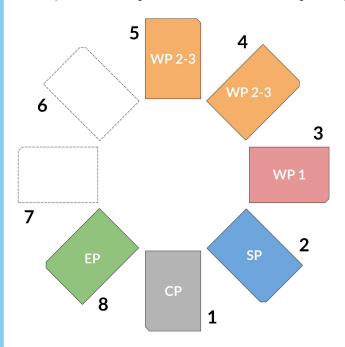
- 1. Add 400 µl of samples to the wells in columns 1 and 7 of 2.2 ml plate.
- 2. Place one or two 2.2 ml plates in the extraction device.
- 3. Place the appropriate number of **tip combs 8** in the extraction device.
- 4. Run the protocol on your device.
- 5. After the program is over, remove the combs and then remove the 2.2 ml plate from the extraction device and seal it with protective film. The extracted DNA is located in columns 6 and 12.

Note. For longer storage of extracted material, transfer it from the plate to appropriate tubes and store at 4 °C.



96 samples per plate format

- 1. Add 400 μl of sample to the wells of the SP plate.
- 2. Place the tip comb 96 into the CP plate.
- 3. Place the plates on the working table of the extraction device according to the diagram below:



- 4 Run the protocol on your device.
- 5. After the program is over, remove the **EP plate** from the extraction device and seal it with a **protective** film.

Note. For longer storage of extracted material, transfer it from the plate to appropriate tubes and store at 4 °C.

6. Discard remaining plates except the **CP** plate, which can be reused.

Safety information





DANGER

Proteinase K

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H335 May cause respiratory irritation.

P261 Avoid breathing dust.

P305+P351+P338 If in eyes: rinse cautiously with water for several minutes. Remove contact lenses,

if present and easy to do. Continue rinsing.

P342+P311 If experiencing respiratory symptoms call a Poison Center or doctor/physician.



WARNING

LTE 2X

H302 Harmful if swallowed.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

P305+P351+P338 If in eyes: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

MQBG binding mix







DANGER

H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.

H314 Causes severe skin burns and eye damage.

H412 Harmful to aquatic life with long lasting effects.

P273 Avoid release to the environment.

 $P280\,Wear\,protective\,gloves/protective\,clothing/eye\,protection/face\,protection/hearing\,protection.$

P301+P312+P330 If swallowed: Call a poison center/doctor/ if you feel unwell.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

P304+P340 If inhaled: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 If in eyes: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

A1WI wash solution





DANGER

H225 Highly flammable liquid and vapor.

H302 Harmful if swallowed.

H315 Causes skin irritation. H319 Causes serious eye irritation.

H336 May cause drowsiness or dizziness.

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P261 Avoid breathing dust/fume/gas/mist/vapours/ spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

P301+P312+P330 If swallowed: Call a poison center/doctor/ if you feel unwell.

P305+P351+P338 If in eyes: rinse cautiously with water for several minutes. Remove contact lenses,

if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical advice/ attention.



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