

	SAFETY DATA SHEET	Page : 1 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture
 Trade name/designation : Power Tune® - Internal Engine Cleaner
 UFI : CRYV-N0N7-X003-GGFM
 Product code : 8M0121969
 Vaporizer : Aerosol
 Document no. : 766-01-0107S

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Intended for general public
 Main use category : Industrial use, Professional use, Consumer use
 Use of the substance/mixture : Cleaner
 Aerosol

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Brunswick Marine EMEA
 Parc industriel de Petit-Rechain, Avenue Mercury 8
 BE 4800 Verviers
 Belgium
 T +32 (0)87 32 32 11
bme.compliance@brunswick.com

1.4. Emergency telephone number

Emergency number : 0032 3 575 55 55
 This telephone number is available 24 hours per day, 7 days per week.

Country/Area	Organisation/Company	Address	Emergency number	Comment
Ireland	National Poisons Information Centre Beaumont Hospital	PO Box 1297 Beaumont Road 9 Dublin	+353 1 809 2566 (Healthcare professionals-24/7) +353 1 809 2166 (public, 8am - 10pm, 7/7)	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Aerosol, Category 1 H222;H229
 Acute toxicity (dermal), Category 4 H312
 Acute toxicity (inhalation:dust,mist) Category 4 H332
 Skin corrosion/irritation, Category 2 H315
 Serious eye damage/eye irritation, Category 1 H318
 Carcinogenicity, Category 2 H351

	SAFETY DATA SHEET	Page : 2 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

Specific target organ toxicity – Single exposure, H336
Category 3, Narcosis
Hazardous to the aquatic environment – Chronic H411
Hazard, Category 2
Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



Signal word

: Danger

Contains

: 2-butoxyethanol; ethylene glycol monobutyl ether; morpholine; naphthalene; Solvent naphtha (petroleum), heavy arom.

Hazard statements (CLP)

: H222 - Extremely flammable aerosol.
H229 - Pressurised container: May burst if heated.
H312+H332 - Harmful in contact with skin or if inhaled.
H315 - Causes skin irritation.
H318 - Causes serious eye damage.
H336 - May cause drowsiness or dizziness.
H351 - Suspected of causing cancer.
H411 - Toxic to aquatic life with long lasting effects.

: P101 - If medical advice is needed, have product container or label at hand.
P102 - Keep out of reach of children.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211 - Do not spray on an open flame or other ignition source.
P251 - Do not pierce or burn, even after use.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, eye protection, face protection.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 - Immediately call a POISON CENTER/doctor.
P391 - Collect spillage.
P405 - Store locked up.
P410+P412 - Protect from sunlight. Do not expose to temperatures exceeding 50 °C.
P501 - Dispose of contents and container to an approved waste disposal plant.

Child-resistant fastening

: Not applicable

Tactile warning

: Applicable

2.3. Other hazards

Other hazards

: Vapours can form explosive mixtures with air. Results of PBT and vPvB assessment : Contains no PBT and/or vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII.

	SAFETY DATA SHEET	Page : 3 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Comments : Aerosol

Substance name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Solvent naphtha (petroleum), heavy arom.	CAS-No.: 64742-94-5 EC-No.: 265-198-5;926-273-4 EC Index: 649-424-00-3 REACH-no: 01-2119510128-50-0020	30 – 40	Flam. Liq. 3, H226 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
2-butoxyethanol; ethylene glycol monobutyl ether substance with a Community workplace exposure limit	CAS-No.: 111-76-2 EC-No.: 203-905-0 EC Index: 603-014-00-0	11 – 21	Acute Tox. 4 (Oral), H302 (ATE=1200 mg/kg bodyweight) Acute Tox. 3 (Inhalation:dust,mist), H331 (ATE=0,5 mg/l/4h) Skin Irrit. 2, H315 Eye Irrit. 2, H319
Oleic acid	CAS-No.: 112-80-1 EC-No.: 204-007-1 EC Index: -	1 – 5	Skin Irrit. 2, H315 Eye Irrit. 2, H319
naphthalene substance with a Community workplace exposure limit	CAS-No.: 91-20-3 EC-No.: 202-049-5 EC Index: 601-052-00-2	1 – 5	Carc. 2, H351 Acute Tox. 4 (Oral), H302 (ATE=500 mg/kg bodyweight) Aquatic Acute 1, H400 Aquatic Chronic 1, H410
morpholine substance with a Community workplace exposure limit	CAS-No.: 110-91-8 EC-No.: 203-815-1 EC Index: 613-028-00-9	1 – 3,5	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation), H332 (ATE=1,5 mg/l/4h) Acute Tox. 4 (Dermal), H312 (ATE=1100 mg/kg bodyweight) Acute Tox. 4 (Oral), H302 (ATE=1050 mg/kg bodyweight) Skin Corr. 1B, H314

	SAFETY DATA SHEET	Page : 4 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

Substance name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
1,2,4-trimethylbenzene substance with a Community workplace exposure limit	CAS-No.: 95-63-6 EC-No.: 202-436-9 EC Index: 601-043-00-3	0,1 – 1	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation:dust,mist), H332 (ATE=1,5 mg/l/4h) Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Chronic 2, H411
ethanediol; ethylene glycol substance with a Community workplace exposure limit	CAS-No.: 107-21-1 EC-No.: 203-473-3 EC Index: 603-027-00-1	0,1 – 1	Acute Tox. 4 (Oral), H302 (ATE=500 mg/kg bodyweight)

Product subject to CLP Annex I, item 1.1.3.7. The disclosure rules of the components is modified in this case.

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

Additional advice	: First aider: Pay attention to self-protection!. Concerning personal protective equipment to use, see section 8. Never give anything by mouth to an unconscious person. In case of doubt or persistent symptoms, consult always a physician. Show this safety data sheet to the doctor in attendance.
Inhalation	: Remove casualty to fresh air and keep warm and at rest. In case of doubt or persistent symptoms, consult always a physician.
Skin contact	: Remove contaminated clothing and shoes. Gently wash with plenty of soap and water. In case of doubt or persistent symptoms, consult always a physician.
Eyes contact	: Rinse immediately carefully and thoroughly with eye-bath or water. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.
Ingestion	: Rinse mouth thoroughly with water. Get medical advice/attention.

4.2. Most important symptoms and effects, both acute and delayed

Inhalation	: May cause drowsiness or dizziness. Harmful if inhaled. The following symptoms may occur: May cause irritation to the respiratory tract.
Skin contact	: Causes skin irritation. Harmful in contact with skin. The following symptoms may occur: Redness, pain.
Eyes contact	: Causes serious eye damage. The following symptoms may occur: Redness, pain. Tears. Blurred vision.
Ingestion	: May cause gastrointestinal irritation, nausea, vomiting and diarrhoea.
Chronic symptoms	: Suspected of causing cancer.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: carbon dioxide (CO2), powder, alcohol-resistant foam, water spray.
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	SAFETY DATA SHEET	Page : 5 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

Unsuitable extinguishing media : Strong water jet.

5.2. Special hazards arising from the substance or mixture

Specific hazards : Extremely flammable aerosol. Ignition risk. Vapours are heavier than air and may spread along floors. Vapours are heavier than air and may travel considerable distance to an ignition source and flash back to source of vapours. Aerosol cans may rupture and become projectiles. In use, may form flammable/explosive vapour-air mixture. Do not spray on a naked flame or any incandescent material. On heating there is a risk of a build-up of pressure in hermetically sealed containers or tanks.

Hazardous decomposition products in case of fire : Carbon oxides (CO, CO₂).

5.3. Advice for firefighters

Firefighting instructions : Evacuate area. Use water spray or fog for cooling exposed containers. Contain the extinguishing fluids by bunding. Prevent fire fighting water from entering the environment.

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus.

Other information : Do not allow run-off from fire-fighting to enter drains or water courses. Dispose of waste in accordance with environmental legislation.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

For non-emergency personnel : Keep upwind. Provide adequate ventilation. Do not breathe vapours. Do not breathe aerosol. Avoid contact with skin, eyes and clothing. Wear recommended personal protective equipment. Concerning personal protective equipment to use, see section 8. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ensure equipment is adequately earthed. Use explosion-proof equipment. Use only non-sparking tools.

6.1.2. For emergency responders

For emergency responders : Ensure procedures and training for emergency decontamination and disposal are in place. Concerning personal protective equipment to use, see section 8.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Stop leak if safe to do so. Leave evaporate and disperse. Dam up the liquid spill. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal. Recover large spills by pumping (use an explosion proof or hand pump). Place in a suitable container for disposal in accordance with the waste regulations (see Section 13). This material and its container must be disposed of in a safe way, and as per local legislation.

	SAFETY DATA SHEET	Page : 6 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

6.4. Reference to other sections

Concerning personal protective equipment to use, see section 8. Concerning disposal elimination after cleaning, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Provide adequate ventilation. Do not breathe vapours. Do not breathe aerosol. Avoid contact with skin, eyes and clothing. Use personal protective equipment as required. Concerning personal protective equipment to use, see section 8. Take any precaution to avoid mixing with Incompatible materials, Refer to Section 10 on Incompatible Materials. Ensure proper process control to avoid excess waste discharge (temperature, concentration, pH, time). Avoid release to the environment. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Remove all sources of ignition. Pressurised container. Protect from sunlight and do not expose to temperatures exceeding 50°C.
Hygiene measures	: Keep good industrial hygiene. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not eat, drink or smoke when using this product. Keep away from food, drink and animal feedingstuffs. Remove contaminated clothes. Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	: Store in a dry, cool and well-ventilated place. Do not store near or with any of the incompatible materials listed in section 10. Bund storage facilities to prevent soil and water pollution in the event of spillage.
Incompatible materials	: Oxidising substances.
Heat and ignition sources	: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Protect from sunlight. Avoid temperatures above 50 °C.
Special rules on packaging	: Tactile warning. Containers which are opened should be properly resealed and kept upright to prevent leakage. After use replace the closing cap immediately.
Packaging materials	: Keep only in the original container.

Germany

German storage class (LGK)	: LGK 2B - Aerosol dispensers and lighters
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Switzerland

Storage class (LK)	: LK 2 - Liquefied or pressurized gases
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7.3. Specific end use(s)

Cleaner.

	SAFETY DATA SHEET	Page : 7 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

2-butoxyethanol; ethylene glycol monobutyl ether (111-76-2)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	2-Butoxyethanol
IOEL TWA	98 mg/m ³
	20 ppm
IOEL STEL	246 mg/m ³
	50 ppm
Remark	Possibility of significant uptake through the skin
Regulatory reference	COMMISSION DIRECTIVE 2000/39/EC
Albania - Occupational Exposure Limits	
Local name	Butoksi-2-etanol
OEL TWA	98 mg/m ³
	20 ppm
OEL STEL	246 mg/m ³
	50 ppm
Remark	Lëkurë (tregon mundësinë e një marrjeje të rëndësishme nëpërmjet lëkurës)
Regulatory reference	VENDIM Nr. 522, datë 6.8.2014 PËR MIRATIMIN E RREGULLORES "PËR MBROJTJEN E SIGURISË DHE SHËNDETIT TË PUNËMARRËSVE NGA RISQET E LIDHURA ME AGJENTËT KIMIKE NË PUNË"
Austria - Occupational Exposure Limits	
Local name	2-Butoxyethanol (Butylglykol; Ethylenglykolmonobutylether)
MAK (OEL TWA)	98 mg/m ³
	20 ppm
MAK (OEL STEL)	200 mg/m ³
	40 ppm
Remark	H
OEL chemical category	Skin notation
Regulatory reference	BGBI. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	2-Butoxyéthanol # 2-Butoxy-ethanol
OEL TWA	98 mg/m ³
	20 ppm
OEL STEL	246 mg/m ³

	SAFETY DATA SHEET	Page : 8 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

2-butoxyethanol; ethylene glycol monobutyl ether (111-76-2)	
	50 ppm
Remark	D: la mention "D" signifie que la résorption de l'agent, via la peau, les muqueuses ou les yeux, constitue une partie importante de l'exposition totale. Cette résorption peut se faire tant par contact direct que par présence de l'agent dans l'air. # D: de vermelding "D" betekent dat de opname van het agens via de huid, de slijmvliezen of de ogen een belangrijk deel van de totale blootstelling vormt. Deze opname kan het gevolg zijn van zowel direct contact als zijn aanwezigheid in de lucht.
OEL chemical category	Skin, Skin notation
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023
Bulgaria - Occupational Exposure Limits	
Local name	2-Бутоксиетанол
OEL TWA	98 mg/m ³
	20 ppm
OEL STEL	246 mg/m ³
	50 ppm
Remark	Кожа (възможна е значителна резорбция чрез кожата); • (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност)
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 28 от 2024 г., в сила от 05.04.2024 г.)
Croatia - Occupational Exposure Limits	
Local name	2-Butoksietanol; etilen-glikol monobutil-eter; butilov celosolv
GVI (OEL TWA)	98 mg/m ³
	20 ppm
KGVI (OEL STEL)	246 mg/m ³
	50 ppm
Remark	Direktiva: 2000/39/EZ. Napomena: Koža (razvrstana kao tvar koja nadražuje kožu (H315))
OEL chemical category	Skin notation
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 148/2023)
Cyprus - Occupational Exposure Limits	
Local name	2-Βουτοξυαιθανόλη
OEL TWA	98 mg/m ³
	20 ppm
OEL STEL	246 mg/m ³
	50 ppm

	SAFETY DATA SHEET	Page : 9 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

2-butoxyethanol; ethylene glycol monobutyl ether (111-76-2)	
OEL chemical category	Skin-potential for cutaneous absorption
Remark	δέρμα
Regulatory reference	Κανονισμοί του 2007 (Κ.Δ.Π. 295/2007)
Czech Republic - Occupational Exposure Limits	
Local name	2-Butoxyethanol (Butylcellosolv; Ethylenglykolmonobutylether)
PEL (OEL TWA)	100 mg/m ³
	20 ppm
NPK-P (OEL C)	200 mg/m ³
	40,7 ppm
Remark	D - při expozici se významně uplatňuje pronikání faktoru kůží, I - dráždí sliznice (oči, dýchací cesty) resp. kůži, B - u látky je zaveden biologický expoziční test (BET) v moči nebo krvi.
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 330/2023 Sb.)
Czech Republic - Biological limit values	
Local name	2-Butoxyethanol (Butylcellosolv, Ethylenglykolmonobutylether)
BLV	200 mg/g creatinine Parameter: Butoxyacetic acid - Medium: urine - Sampling time: end of shift at end of workweek (after hydrolysis) 0,17 mmol/mmol Creatinine Parameter: Butoxyacetic acid - Medium: urine - Sampling time: end of shift at end of workweek (after hydrolysis)
Regulatory reference	Vyhláška č. 107/2013 Sb. (kterou se mění vyhláška č. 432/2003 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Butylglycol (2-Butoxyethanol; Butylcellosolve; Ethylenglykolmonobutylether)
OEL TWA	98 mg/m ³
	20 ppm
OEL STEL	246 mg/m ³
	50 ppm
Remark	E (betyder, at stoffet har en EF-grænseværdi); H (betyder, at stoffet kan optages gennem huden)
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	BEK nr 291 af 19/03/2024
Estonia - Occupational Exposure Limits	
Local name	2-butoksüetanol (o-butüületüleenglükool, etüleenglükoolmono-butüüleeter, butüülselloolv)
OEL TWA	98 mg/m ³
	20 ppm
OEL STEL	246 mg/m ³
	50 ppm

	SAFETY DATA SHEET	Page : 10 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

2-butoxyethanol; ethylene glycol monobutyl ether (111-76-2)	
Remark	A (Naha kaudu kergesti imenduv aine), S (Sensibiliseeriv aine)
OEL chemical category	Skin notation, Sensitizer
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 21.12.2022, 3)
Finland - Occupational Exposure Limits	
Local name	2-Butoksietanoli
HTP (OEL TWA)	98 mg/m ³
	20 ppm
HTP (OEL STEL)	250 mg/m ³
	50 ppm
Remark	lho
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
Local name	2-Butoxyéthanol (Butylglycol)
VME (OEL TWA)	49 mg/m ³ (restrictive limit)
	10 ppm (restrictive limit)
VLE (OEL C/STEL)	246 mg/m ³ (restrictive limit)
	50 ppm (restrictive limit)
Remark	Valeurs réglementaires contraignantes. Risque de pénétration percutanée
OEL chemical category	Risk of cutaneous absorption
Regulatory reference	Article R4412-149 du Code du travail (réf.: INRS ED 6443, 2022; Outil65; Décret n° 2019-1487; Décret n° 2020-1546; Décret n° 2021-434; Décret n° 2021-1849)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	2-Butoxyethanol
Occupational exposure limit value (mg/m ³) (TRGS900)	49 mg/m ³ (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Occupational exposure limit value (ppm) (TRGS900)	10 ppm (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Peak exposure limitation factor	2(l)
Remark	EU - Europäische Union (Von der EU wurde ein Luftgrenzwert festgelegt: Abweichungen bei Wert und Spitzenbegrenzung sind möglich); DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission); H - hautresorptiv; Y - Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden
Chemical category	Skin notation
Regulatory reference	TRGS900

	SAFETY DATA SHEET	Page : 11 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

2-butoxyethanol; ethylene glycol monobutyl ether (111-76-2)	
Germany - Biological limit values (TRGS 903)	
Local name	2-Butoxyethanol
Biological limit value	150 mg/g creatinine Parameter: Butoxyacetic acid (after hydrolysis) - Medium: urine - Sampling time: for long-term exposures: at the end of the shift after several shifts 150 mg/g creatinine Parameter: Butoxyacetic acid (after hydrolysis) - Medium: urine - Sampling time: end of shift
Regulatory reference	TRGS 903
Gibraltar - Occupational Exposure Limits	
Local name	2-Butoxyethanol
OEL TWA	98 mg/m ³ 20 ppm
OEL STEL	246 mg/m ³ 50 ppm
Remark	Skin
OEL chemical category	Skin notation
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Greece - Occupational Exposure Limits	
Local name	Βουτοξυ-αιθανόλη, 2-
OEL TWA	120 mg/m ³ 25 ppm
OEL chemical category	skin - potential for cutaneous absorption
Remark	Η ένδειξη «δέρμα» στις οριακές τιμές επαγγελματικής έκθεσης επισημαίνει το ενδεχόμενο σημαντικής διείσδυσης μέσω του δέρματος.
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Hungary - Occupational Exposure Limits	
Local name	2-BUTOXIETANOL
AK (OEL TWA)	98 mg/m ³
CK (OEL STEL)	246 mg/m ³
Remark	b (Bőrön át is felszívódik), i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármát); EU1 (2000/39/EK irányelvben közölt érték); T (Azok az anyagok, amelyek egészségkárosító hatása TARTÓS expozíciót követően jelentkezik)
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Ireland - Occupational Exposure Limits	
Local name	2-Butoxyethanol (EGBE) [Ethylene glycol monobutyl ether]

	SAFETY DATA SHEET	Page : 12 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

2-butoxyethanol; ethylene glycol monobutyl ether (111-76-2)	
OEL TWA	98 mg/m ³
	20 ppm
OEL STEL	246 mg/m ³
	50 ppm
Remark	IOELV (Indicative Occupational Exposure Limit Values), Skin (Substances which have the capacity to penetrate intact skin when they come in contact with it and be absorbed into the body. A substantial contribution to the total body burden via dermal exposure is possible)
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	Chemical Agents Code of Practice 2024
Ireland - Biological limit values	
Local name	2-Butoxyethanol
BMGV	200 mg/g creatinine Parameter: BAA - Medium: urine - Sampling time: End of shift
Regulatory reference	Biological Monitoring Guidelines (HSA, 2011)
Italy - Occupational Exposure Limits	
Local name	Butossietanolo-2
OEL TWA	98 mg/m ³
	20 ppm
OEL STEL	246 mg/m ³
	50 ppm
Remark	Cute
OEL chemical category	skin - potential for cutaneous absorption
Regulatory reference	Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i.
Latvia - Occupational Exposure Limits	
Local name	2-Butoksietanols, (etilēnglikola monobutilēteris, Butilcelosolvs)
OEL TWA	98 mg/m ³
	20 ppm
OEL STEL	246 mg/m ³
	50 ppm
Remark	Āda
OEL chemical category	skin - potential for cutaneous exposure
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2024. gada 26. martā noteikumiem Nr. 191).
Lithuania - Occupational Exposure Limits	
Local name	Etilenglikolio monobutileteris (butilglikolis, 2-butoksietanolis)
IPRV (OEL TWA)	50 mg/m ³
	10 ppm

	SAFETY DATA SHEET	Page : 13 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

2-butoxyethanol; ethylene glycol monobutyl ether (111-76-2)	
TPRV (OEL STEL)	100 mg/m ³ 20 ppm
Remark	O (medžiaga į organizmą gali prasiskverbti pro nepažeistą odą)
OEL chemical category	Skin notation
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Luxembourg - Occupational Exposure Limits	
Local name	2-Butoxyéthanol
OEL TWA	98 mg/m ³ 20 ppm
OEL STEL	246 mg/m ³ 50 ppm
OEL chemical category	Possibility of significant uptake through the skin
Remark	Peau
Regulatory reference	Mémorial A N° 226 de 2021 concernant la protection de la sécurité et de la santé des salariés contre les risques liés à des agents chimiques sur le lieu de travail
Malta - Occupational Exposure Limits	
Local name	2-Butoxyethanol
OEL TWA	98 mg/m ³ 20 ppm
OEL STEL	246 mg/m ³ 50 ppm
Remark	Skin # Ġilda
OEL chemical category	Possibility of significant uptake through the skin
Regulatory reference	S.L. 424.24 - Chemical Agents at Work Regulations (L.N. 356 of 2021) # L.S. 424.24 - Regolamenti dwar Aġenti Kimiċi fuq il-Post tax-Xogħol (A.L. 356 tal-2021)
Netherlands - Occupational Exposure Limits	
Local name	2-Butoxyethanol
TGG-8u (OEL TWA)	100 mg/m ³ 20,4 ppm
TGG-15min (OEL STEL)	246 mg/m ³ 50 ppm
Remark	H (Huidopname) Stoffen die relatief gemakkelijk door de huid kunnen worden opgenomen, hetgeen een substantiële bijdrage kan betekenen aan de totale inwendige blootstelling, hebben in de lijst een H-aanduiding. Bij deze stoffen moeten naast maatregelen tegen inademing ook adequate maatregelen ter voorkoming van huidcontact worden genomen.
MAC chemical category	Skin notation

	SAFETY DATA SHEET	Page : 14 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

2-butoxyethanol; ethylene glycol monobutyl ether (111-76-2)	
Regulatory reference	Arbeidsomstandighedenregeling 2024
Poland - Occupational Exposure Limits	
Local name	2-Butoksyetanol (butoksyetylowy alkohol)
NDS (OEL TWA)	98 mg/m ³
NDSch (OEL STEL)	200 mg/m ³
Remark	Skóra (Oznakowanie substancji notacją „skóra” oznacza, że wchłanianie substancji przez skórę może być tak samo istotne jak przy narażeniu drogą oddechową).
Regulatory reference	Dz. U. 2018 poz. 1286 wraz z późn. zm.
Portugal - Indicative Occupational Exposure Limit (IOEL)	
Local name	2-Butoxietanol
IOEL TWA	98 mg/m ³
	20 ppm
IOEL STEL	246 mg/m ³
	50 ppm
Remark	Cutânea.
Regulatory reference	Decreto-Lei n.º 1/2021 de 6 de janeiro
Portugal - Occupational Exposure Limits	
Local name	2-Butoxietanol (EGBE)
OEL TWA	98 mg/m ³ (indicative limit value)
	20 ppm (indicative limit value)
OEL STEL	246 mg/m ³ (indicative limit value)
	50 ppm (indicative limit value)
OEL chemical category	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans, skin - potential for cutaneous exposure indicative limit value
Remark	A3 (Agente carcinogénico confirmado nos animais de laboratório com relevância desconhecida no Homem); IBE (Índice biológico de exposição)
Regulatory reference	Norma Portuguesa NP 1796:2014
Portugal - Biological Exposure Indices	
Local name	2-Butoxietanol (EGBE)
BEI	200 mg/g creatinine Parâmetro: Ácido butoxiacético (BAA) - Meio: urina - Momento da amostragem: Fim do turno - Notação: Com hidrólise
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	2-Butoxietanol/Etilenglicol monobutyleter
OEL TWA	98 mg/m ³
	20 ppm
OEL STEL	246 mg/m ³

	SAFETY DATA SHEET	Page : 15 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

2-butoxyethanol; ethylene glycol monobutyl ether (111-76-2)	
	50 ppm
OEL chemical category	Skin notation
Remark	P - posibilitatea unei penetrări cutanate importante
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
Serbia - Occupational Exposure Limits	
Local name	2-бутоксietанол
OEL TWA	98 mg/m ³
	20 ppm
OEL STEL	246 mg/m ³
	50 ppm
Remark	EY* – напомена да се ради о хемијским материјама за које су утврђене индикативне граничне вредности изложености према Директиви 2000/39/EЗ (прва листа)
Regulatory reference	ПРАВИЛНИК о превентивним мерама за безбедан и здрав рад при излагању хемијским материјама („Службени гласник РС”, бр. 106/09, 117/17 и 107/21)
Slovakia - Occupational Exposure Limits	
Local name	2-Butoxyetanol (butylglykol)
NPHV (OEL TWA)	98 mg/m ³
	20 ppm
NPHV (OEL STEL)	246 mg/m ³
	50 ppm
NPHV (OEL C)	246 mg/m ³
Remark	K - znamená, že faktor môže byť ľahko absorbovaný kožou
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	2-butoksietanol (butilglikol)
OEL TWA	98 mg/m ³
	20 ppm
OEL STEL	246 mg/m ³
	50 ppm
Remark	K (Lastnost lažjega prehajanja snovi v organizem skozi kožo), Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti), BAT (Biološka mejna vrednost), EU
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021

	SAFETY DATA SHEET	Page : 16 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

2-butoxyethanol; ethylene glycol monobutyl ether (111-76-2)	
Slovenia - Biological limit values	
Local name	2-butoksietanol
BLV	150 mg/g creatinine Parameter: butoksiocetna kislina (po hidrolizi) - Biološki vzorec: urin - Čas vzorčenja: ob koncu delovne izmene, pri dolgotrajni izpostavljenosti: ob koncu delovne izmene po več zaporednih delavnikih
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Spain - Occupational Exposure Limits	
Local name	2-Butoxietanol (Butil cellosolve; Éter monobutílico del etilenglicol)
VLA-ED (OEL TWA)	98 mg/m ³ (indicative limit value)
	20 ppm (indicative limit value)
VLA-EC (OEL STEL)	245 mg/m ³
	50 ppm
Remark	Vía dérmica (Indica que, en las exposiciones a esta sustancia, la aportación por la vía cutánea puede resultar significativa para el contenido corporal total si no se adoptan medidas para prevenir la absorción. En estas situaciones, es aconsejable la utilización del control biológico para poder cuantificar la cantidad global absorbida del contaminante), VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo), VLB® (Agente químico que tiene Valor Límite Biológico).
OEL chemical category	skin - potential for cutaneous absorption
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2024. INSHT
Spain - Biological limit values	
Local name	2-Butoxietanol (Butil cellosolve; Éter monobutílico del etilenglicol)
BLV	200 mg/g creatinine Parameter: Butoxyacetic acid (with hydrolysis) - Medium: urine - Sampling time: end of shift (with hydrolysis)
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2024. INSHT
Sweden - Occupational Exposure Limits	
Local name	Etylenglykolmonobutyleter (2-Butoxietanol)
NGV (OEL TWA)	50 mg/m ³
	10 ppm
KGV (OEL STEL)	246 mg/m ³
	50 ppm
Remark	H (Ämnet kan lätt upptas genom huden. Det föreskrivna gränsvärdet bedöms ge tillräckligt skydd endast under förutsättning att huden är skyddad mot exponering för ämnet ifråga)
OEL chemical category	Skin notation
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)

	SAFETY DATA SHEET	Page : 17 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

2-butoxyethanol; ethylene glycol monobutyl ether (111-76-2)	
United Kingdom - Occupational Exposure Limits	
Local name	2-Butoxyethanol
WEL TWA (OEL TWA)	123 mg/m ³
	25 ppm
WEL STEL (OEL STEL)	246 mg/m ³
	50 ppm
Remark	Sk (Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity)
WEL chemical category	Potential for cutaneous absorption
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
United Kingdom - Biological limit values	
Local name	2-Butoxyethanol
BMGV	240 mmol/mol Creatinine Parameter: butoxyacetic acid - Medium: urine - Sampling time: Post shift
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	2-Bútoxýetanól (bútylglykól, bútylsellósolv, etýlenglykólmónóbútyleter, glykólmónóbútyleter)
OEL TWA	100 mg/m ³
	20 ppm
OEL STEL	246 mg/m ³
	50 ppm
Remark	H (efnið getur auðveldlega borist inn í líkamann gegnum húð)
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway - Occupational Exposure Limits	
Local name	2-butoksyetanol (Butylglykol; Etylenglykolmonobutyleter)
Grenseverdi (OEL TWA)	50 mg/m ³
	10 ppm
Kortidsverdi (OEL STEL)	75 mg/m ³ (value calculated)
	20 ppm (value calculated)
Remark	H: Kjemikalier som kan tas opp gjennom huden; E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
OEL chemical category	Skin notation
Regulatory reference	FOR-2023-12-18-2278
North Macedonia - Occupational Exposure Limits	
Local name	2-бутоксиетанол (бутилгликол)

	SAFETY DATA SHEET	Page : 18 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

2-butoxyethanol; ethylene glycol monobutyl ether (111-76-2)	
OEL TWA	98 mg/m ³ 20 ppm
KTV	2,5
Short time value [mg/m ³]	245 mg/m ³
Short time value	50 ppm
Remark	(KTV) краткотрајна вредност (КТВ) значи концентрација на опасни хемиски супстанции во воздухот на работното место внатре во зона на дишење, на која работникот без опасност по здравјето може да е изложен на покусо време. Изложеноста на краткотрајни вредности може да трае највеќе 15 минути и не смее да се повтори повеќе од четирипати во работната смена, при што меѓу две изложености на оваа концентрација мора да измине најмалку 60 минути. Краткотрајната вредност е изразена во mg/m ³ или во ml/m ³ (ppm) а е дадена како многукратни дозволени пречекорувања на граничната вредност; (K) својство на полесно пренесување на супстанците во организмот преку кожата; (EU) European Union – гранична вредност, определена на ниво на Европската унија
Regulatory reference	Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанции („Службен весник на Република Македонија” бр.46/10)
Switzerland - Occupational Exposure Limits	
Local name	2-Butoxyéthanol / 2-Butoxyethanol [Butylglykol, Ethylenglykolmonobutylether]
MAK (OEL TWA)	49 mg/m ³ 10 ppm
KZGW (OEL STEL)	98 mg/m ³ 20 ppm
Notation	R, SS _C , B / H, SS _C , B
Remark	INRS, HSE, NIOSH
OEL chemical category	Skin notation
Regulatory reference	www.suva.ch, 01.01.2024
Switzerland - BAT	
Local name	2-Butoxyéthanol / 2-Butoxyethanol
BAT	150 mg/g creatinine Parameter: 2-Butoxyacetic acid (after hydrolysis) - Medium: urine - Sampling time: end of shift, and after several shifts (for long-term exposures)
Regulatory reference	Ordonnance 832.30 (OPA), article 50 al. 3, www.suva.ch/valeurs-limites / Verordnung 832.30 (VUV), Art. 50 Abs. 3, www.suva.ch/grenzwerte
USA - ACGIH - Occupational Exposure Limits	
Local name	2-Butoxyethanol (EGBE)
ACGIH® TLV® TWA	20 ppm

	SAFETY DATA SHEET	Page : 19 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

2-butoxyethanol; ethylene glycol monobutyl ether (111-76-2)	
Remark (ACGIH)	TLV® Basis: Eye & URT irr. Notations: A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans); BEI
ACGIH chemical category	Confirmed Animal Carcinogen with Unknown Relevance to Humans
Regulatory reference	ACGIH 2024
USA - ACGIH - Biological Exposure Indices	
Local name	2-Butoxyethanol
BEI	200 mg/g creatinine Parameter: Butoxyacetic acid with hydrolysis - Medium: urine - Sampling time: end of shift
Regulatory reference	ACGIH 2024

Oleic acid (112-80-1)	
Bulgaria - Occupational Exposure Limits	
OEL TWA	10 mg/m ³

morpholine (110-91-8)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Morpholine
IOEL TWA	36 mg/m ³
	10 ppm
IOEL STEL	72 mg/m ³
	20 ppm
Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC
Austria - Occupational Exposure Limits	
MAK (OEL TWA)	36 mg/m ³ (reaction with nitrosating agents can lead to formation of carcinogens N-Nitrosomorpholine)
	10 ppm (reaction with nitrosating agents can lead to formation of carcinogens N-Nitrosomorpholine)
MAK (OEL STEL)	36 mg/m ³
	10 ppm
OEL C	36 mg/m ³
	10 ppm
Belgium - Occupational Exposure Limits	
Local name	Morpholine # Morfoline
OEL TWA	36 mg/m ³
	10 ppm
OEL STEL	72 mg/m ³
	20 ppm

	SAFETY DATA SHEET	Page : 20 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

morpholine (110-91-8)	
Remark	D: la mention "D" signifie que la résorption de l'agent, via la peau, les muqueuses ou les yeux, constitue une partie importante de l'exposition totale. Cette résorption peut se faire tant par contact direct que par présence de l'agent dans l'air. # D: de vermelding "D" betekent dat de opname van het agens via de huid, de slijmvliezen of de ogen een belangrijk deel van de totale blootstelling vormt. Deze opname kan het gevolg zijn van zowel direct contact als zijn aanwezigheid in de lucht.
OEL chemical category	Skin
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023
Bulgaria - Occupational Exposure Limits	
OEL TWA	36 mg/m ³
	10 ppm
OEL STEL	72 mg/m ³
	20 ppm
Croatia - Occupational Exposure Limits	
GVI (OEL TWA)	36 mg/m ³
	10 ppm
KGVI (OEL STEL)	72 mg/m ³
	20 ppm
Cyprus - Occupational Exposure Limits	
OEL TWA	36 mg/m ³
	10 ppm
OEL STEL	72 mg/m ³
	20 ppm
Czech Republic - Occupational Exposure Limits	
PEL (OEL TWA)	35 mg/m ³
OEL chemical category	Potential for cutaneous absorption
Denmark - Occupational Exposure Limits	
OEL TWA	36 mg/m ³
	10 ppm
OEL STEL	72 mg/m ³
	20 ppm
OEL chemical category	Potential for cutaneous absorption
Estonia - Occupational Exposure Limits	
OEL TWA	36 mg/m ³
	10 ppm
OEL STEL	72 mg/m ³
	20 ppm

	SAFETY DATA SHEET	Page : 21 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

morpholine (110-91-8)	
Finland - Occupational Exposure Limits	
HTP (OEL TWA)	36 mg/m ³
	10 ppm
HTP (OEL STEL)	72 mg/m ³
	20 ppm
OEL chemical category	Potential for cutaneous absorption
France - Occupational Exposure Limits	
VME (OEL TWA)	36 mg/m ³ (restrictive limit)
	10 ppm (restrictive limit)
VLE (OEL C/STEL)	72 mg/m ³ (restrictive limit)
	20 ppm (restrictive limit)
Germany - Occupational Exposure Limits (TRGS 900)	
Occupational exposure limit value (mg/m ³) (TRGS900)	18 mg/m ³ (the reaction with nitrosating agents can lead to the formation of the corresponding carcinogenic N-Nitrosoamines)
Occupational exposure limit value (ppm) (TRGS900)	5 ppm (the reaction with nitrosating agents can lead to the formation of the corresponding carcinogenic N-Nitrosoamines)
Chemical category	Skin notation
Gibraltar - Occupational Exposure Limits	
OEL TWA	36 mg/m ³
	10 ppm
OEL STEL	72 mg/m ³
	20 ppm
Greece - Occupational Exposure Limits	
OEL TWA	36 mg/m ³
	10 ppm
OEL STEL	72 mg/m ³
	20 ppm
Hungary - Occupational Exposure Limits	
AK (OEL TWA)	36 mg/m ³
CK (OEL STEL)	72 mg/m ³
Ireland - Occupational Exposure Limits	
OEL TWA	36 mg/m ³
	10 ppm
OEL STEL	72 mg/m ³
	20 ppm
OEL chemical category	Potential for cutaneous absorption

	SAFETY DATA SHEET	Page : 22 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

morpholine (110-91-8)	
Italy - Occupational Exposure Limits	
OEL TWA	36 mg/m ³
	10 ppm
OEL STEL	72 mg/m ³
	20 ppm
OEL chemical category	skin - potential for cutaneous absorption
Latvia - Occupational Exposure Limits	
OEL TWA	36 mg/m ³
	10 ppm
Lithuania - Occupational Exposure Limits	
IPRV (OEL TWA)	36 mg/m ³
	10 ppm
TPRV (OEL STEL)	72 mg/m ³
	20 ppm
Luxembourg - Occupational Exposure Limits	
OEL TWA	36 mg/m ³
	10 ppm
OEL STEL	72 mg/m ³
	20 ppm
Malta - Occupational Exposure Limits	
OEL TWA	36 mg/m ³
	10 ppm
OEL STEL	72 mg/m ³
	20 ppm
Netherlands - Occupational Exposure Limits	
TGG-8u (OEL TWA)	36 mg/m ³
	10 ppm
TGG-15min (OEL STEL)	72 mg/m ³
	20 ppm
MAC chemical category	Skin notation
Poland - Occupational Exposure Limits	
NDS (OEL TWA)	36 mg/m ³
NDSch (OEL STEL)	72 mg/m ³
Portugal - Occupational Exposure Limits	
OEL TWA	36 mg/m ³ (indicative limit value)
	10 ppm (indicative limit value)

	SAFETY DATA SHEET	Page : 23 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

morpholine (110-91-8)	
OEL STEL	72 mg/m ³ (indicative limit value)
	20 ppm (indicative limit value)
OEL chemical category	A4 - Not Classifiable as a Human Carcinogen, skin - potential for cutaneous exposure
Romania - Occupational Exposure Limits	
OEL TWA	36 mg/m ³
	10 ppm
OEL STEL	72 mg/m ³
	20 ppm
Slovakia - Occupational Exposure Limits	
NPHV (OEL TWA)	36 mg/m ³
	10 ppm
NPHV (OEL C)	72 mg/m ³
Slovenia - Occupational Exposure Limits	
OEL TWA	36 mg/m ³
	10 ppm
OEL STEL	72 mg/m ³
	20 ppm
OEL chemical category	Potential for cutaneous absorption
Spain - Occupational Exposure Limits	
VLA-ED (OEL TWA)	36 mg/m ³ (indicative limit value)
	10 ppm (indicative limit value)
VLA-EC (OEL STEL)	72 mg/m ³
	20 ppm
Sweden - Occupational Exposure Limits	
NGV (OEL TWA)	35 mg/m ³
	10 ppm
KGV (OEL STEL)	72 mg/m ³
	20 ppm
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA)	36 mg/m ³
	10 ppm
WEL STEL (OEL STEL)	72 mg/m ³
	20 ppm
WEL chemical category	Potential for cutaneous absorption

	SAFETY DATA SHEET	Page : 24 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

morpholine (110-91-8)	
Norway - Occupational Exposure Limits	
Grenseverdi (OEL TWA)	36 mg/m ³ 10 ppm
Korttidsverdi (OEL STEL)	54 mg/m ³ (value calculated) 20 ppm (value calculated)
OEL chemical category	Skin notation
Switzerland - Occupational Exposure Limits	
MAK (OEL TWA)	36 mg/m ³ (the reaction with Nitrosating agent can lead to carcinogenic N-Nitrosomorpholines) 10 ppm (the reaction with Nitrosating agent can lead to carcinogenic N-Nitrosomorpholines)
KZGW (OEL STEL)	72 mg/m ³ (the reaction with Nitrosating agent can lead to carcinogenic N-Nitrosomorpholines) 20 ppm (the reaction with Nitrosating agent can lead to carcinogenic N-Nitrosomorpholines)
OEL chemical category	Skin notation
USA - ACGIH - Occupational Exposure Limits	
ACGIH® TLV® TWA	20 ppm
ACGIH chemical category	Not Classifiable as a Human Carcinogen, Skin - potential significant contribution to overall exposure by the cutaneous route

naphthalene (91-20-3)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Naphthalene
IOEL TWA	50 mg/m ³ 10 ppm
Remark	(Year of adoption 2010)
Regulatory reference	COMMISSION DIRECTIVE 91/322/EEC; SCOEL Recommendations
Albania - Occupational Exposure Limits	
Local name	Naftalen
OEL TWA	50 mg/m ³ 10 ppm
Regulatory reference	VENDIM Nr. 522, datë 6.8.2014 PËR MIRATIMIN E RREGULLORES "PËR MBROJTJEN E SIGURISË DHE SHËNDETIT TË PUNËMARRËSVE NGA RISQET E LIDHURA ME AGJENTËT KIMIKË NË PUNË"
Austria - Occupational Exposure Limits	
Local name	Naphthalin
MAK (OEL TWA)	50 mg/m ³ 10 ppm

	SAFETY DATA SHEET	Page : 25 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

naphthalene (91-20-3)	
Remark	H. Krebszeugend: III B
OEL chemical category	Skin notation, Group B Carcinogen
Regulatory reference	BGBI. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Naphtalène # Naftaleen
OEL TWA	53 mg/m ³
	10 ppm
OEL STEL	80 mg/m ³
	15 ppm
Remark	D: la mention "D" signifie que la résorption de l'agent, via la peau, les muqueuses ou les yeux, constitue une partie importante de l'exposition totale. Cette résorption peut se faire tant par contact direct que par présence de l'agent dans l'air. # D: de vermelding "D" betekent dat de opname van het agens via de huid, de slijmvliezen of de ogen een belangrijk deel van de totale blootstelling vormt. Deze opname kan het gevolg zijn van zowel direct contact als zijn aanwezigheid in de lucht.
OEL chemical category	Skin
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023
Bulgaria - Occupational Exposure Limits	
Local name	Нафталин
OEL TWA	50 mg/m ³
OEL STEL	75 mg/m ³
Remark	• (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност)
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.)
Croatia - Occupational Exposure Limits	
Local name	Naftalen
GVI (OEL TWA)	50 mg/m ³
	10 ppm
Remark	Direktiva: 91/322/EEZ
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 148/2023)
Cyprus - Occupational Exposure Limits	
Local name	Ναφθαλένιο
OEL TWA	50 mg/m ³
	10 ppm
Regulatory reference	Κανονισμοί του 2007 (Κ.Δ.Π. 295/2007)

	SAFETY DATA SHEET	Page : 26 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

naphthalene (91-20-3)	
Czech Republic - Occupational Exposure Limits	
Local name	Naftalen
PEL (OEL TWA)	50 mg/m ³
	9,4 ppm
NPK-P (OEL C)	100 mg/m ³
	18,8 ppm
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 330/2023 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Naphthalen
OEL TWA	50 mg/m ³
	10 ppm
OEL STEL	100 mg/m ³
	20 ppm
Remark	E (betyder, at stoffet har en EF-grænseværdi); K (betyder, at stoffet anses for at kunne være kræftfremkaldende)
Regulatory reference	BEK nr 202 af 21/02/2023
Estonia - Occupational Exposure Limits	
Local name	Naftaleen
OEL TWA	50 mg/m ³
	10 ppm
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 21.12.2022, 3)
Finland - Occupational Exposure Limits	
Local name	Naftaleeni
HTP (OEL TWA)	5 mg/m ³
	1 ppm
HTP (OEL STEL)	10 mg/m ³
	2 ppm
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
Local name	Naphtalène
VME (OEL TWA)	50 mg/m ³
	10 ppm
Remark	Valeurs recommandées/admises. Cancérogène de catégorie 2
OEL chemical category	Carcinogen category 2
Regulatory reference	Circulaire du Ministère du travail (réf.: INRS ED 6443, 2022; Outil65)

	SAFETY DATA SHEET	Page : 27 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

naphthalene (91-20-3)	
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Naphthalin
Occupational exposure limit value (mg/m ³) (TRGS900)	2 mg/m ³ (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed-inhalable fraction)
Occupational exposure limit value (ppm) (TRGS900)	0,4 ppm (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed-inhalable fraction)
Peak exposure limitation factor	4(I)
Remark	AGS - Ausschuss für Gefahrstoffe; H - hautresorptiv; Y - Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden; 11 - Summe aus Dampf und Aerosolen; EU - Europäische Union (Von der EU wurde ein Luftgrenzwert festgelegt: Abweichungen bei Wert und Spitzenbegrenzung sind möglich)
Chemical category	Skin notation
Regulatory reference	TRGS900
Gibraltar - Occupational Exposure Limits	
Local name	Naphtalene
OEL TWA	50 mg/m ³
	10 ppm
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Greece - Occupational Exposure Limits	
Local name	Ναφθαλίνιο
OEL TWA	50 mg/m ³
	10 ppm
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Hungary - Occupational Exposure Limits	
Local name	NAFTALIN
AK (OEL TWA)	50 mg/m ³
Remark	i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármát); EU91 (91/322/EGK irányelvben közölt érték); N (Irritáló anyagok, egyszerű fojtógázok, csekély egészségkárosító hatással bíró anyagok)
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Ireland - Occupational Exposure Limits	
Local name	Naphthalene
OEL TWA	50 mg/m ³
	10 ppm

	SAFETY DATA SHEET	Page : 28 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

naphthalene (91-20-3)	
OEL STEL	150 mg/m ³ (calculated)
	30 ppm (calculated)
Remark	IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2021
Latvia - Occupational Exposure Limits	
Local name	Naftalīns
OEL TWA	50 mg/m ³
	10 ppm
Remark	Carc. 2
Regulatory reference	Ministru kabineta 2008. gada 29. septembra noteikumi Nr. 803 (Grozījumi Ministru kabineta 2020. gada 7. janvārī noteikumiem Nr. 10).
Lithuania - Occupational Exposure Limits	
Local name	Naftalenas (naftalinas)
IPRV (OEL TWA)	50 mg/m ³
	10 ppm
Remark	K (kancerogeninis poveikis)
OEL chemical category	Carcinogen
Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Luxembourg - Occupational Exposure Limits	
Local name	Naphtalène
OEL TWA	50 mg/m ³
	10 ppm
Regulatory reference	Mémorial A N° 226 de 2021 concernant la protection de la sécurité et de la santé des salariés contre les risques liés à des agents chimiques sur le lieu de travail
Malta - Occupational Exposure Limits	
Local name	Naphtalene
OEL TWA	50 mg/m ³
	10 ppm
Regulatory reference	S.L.424.24 - Chemical Agents at Work Regulations (L.N.356 of 2021)
Netherlands - Occupational Exposure Limits	
Local name	Naftaleen
TGG-8u (OEL TWA)	50 mg/m ³
	10 ppm
TGG-15min (OEL STEL)	80 mg/m ³
	16 ppm
Regulatory reference	Arbeidsomstandighedenregeling 2024

	SAFETY DATA SHEET	Page : 29 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

naphthalene (91-20-3)	
Poland - Occupational Exposure Limits	
Local name	Naftalen
NDS (OEL TWA)	20 mg/m ³
NDSch (OEL STEL)	50 mg/m ³
Remark	Skóra (Oznakowanie substancji notacją „skóra” oznacza, że wchłanianie substancji przez skórę może być tak samo istotne jak przy narażeniu drogą oddechową).
Regulatory reference	Dz. U. 2018 poz. 1286 wraz z późn. zm.
Portugal - Indicative Occupational Exposure Limit (IOEL)	
Local name	Naftaleno
IOEL TWA	50 mg/m ³
	10 ppm
Regulatory reference	Decreto-Lei n.º 1/2021 de 6 de janeiro
Portugal - Occupational Exposure Limits	
Local name	Naftaleno
OEL TWA	50 mg/m ³ (indicative limit value)
	10 ppm (indicative limit value)
OEL STEL	15 ppm
OEL chemical category	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans, skin - potential for cutaneous exposure
Remark	P (Toxicidade percutânea); A3 (Agente carcinogénico confirmado nos animais de laboratório con relevância desconhecida no Homem)
Regulatory reference	Norma Portuguesa NP 1796:2014
Portugal - Biological Exposure Indices	
Local name	Naftaleno
BEI	Parâmetro: 1-Naftol + 2-Naftol - Momento da amostragem: Fim do turno - Notação: Nq (Não quantitativo), Ne (Não específico), Com hidrólise
Regulatory reference	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
Local name	Naftalină
OEL TWA	50 mg/m ³
	10 ppm
OEL chemical category	C2
Remark	C2 - susceptibil de a provoca apariția cancerului
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
Serbia - Occupational Exposure Limits	
Local name	нафтален
OEL TWA	50 mg/m ³

	SAFETY DATA SHEET	Page : 30 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

naphthalene (91-20-3)	
	10 ppm
Remark	EY – напомена да се ради о хемијским материјама за које су утврђене индикативне граничне вредности изложености према Директиви 91/322/ЕЕЗ
Regulatory reference	ПРАВИЛНИК о превентивним мерама за безбедан и здрав рад при излагању хемијским материјама („Службени гласник РС”, бр. 106/09, 117/17 и 107/21)
Slovakia - Occupational Exposure Limits	
Local name	Naftalén
NPHV (OEL TWA)	50 mg/m ³
	10 ppm
NPHV (OEL STEL)	80 mg/m ³
	15 ppm
NPHV (OEL C)	80 mg/m ³
Remark	K - znamená, že faktor môže byť ľahko absorbovaný kožou
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	naftalen
OEL TWA	50 mg/m ³ (inhalable fraction)
	10 ppm
OEL STEL	50 mg/m ³ (inhalable fraction)
	10 ppm
Remark	K (Lastnost lažjega prehajanja snovi v organizem skozi kožo), Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti), EU
OEL chemical category	Category 2, Potential for cutaneous absorption
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Spain - Occupational Exposure Limits	
Local name	Naftaleno
VLA-ED (OEL TWA)	53 mg/m ³
	10 ppm
VLA-EC (OEL STEL)	80 mg/m ³
	15 ppm
Remark	Vía dérmica (Indica que, en las exposiciones a esta sustancia, la aportación por la vía cutánea puede resultar significativa para el contenido corporal total si no se adoptan medidas para prevenir la absorción. En estas situaciones, es aconsejable la utilización del control biológico para poder cuantificar la cantidad global absorbida del contaminante), VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo).

	SAFETY DATA SHEET	Page : 31 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

naphthalene (91-20-3)	
OEL chemical category	skin - potential for cutaneous absorption
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2024. INSHT
Sweden - Occupational Exposure Limits	
Local name	Naftalen
NGV (OEL TWA)	50 mg/m ³
	10 ppm
KGV (OEL STEL)	80 mg/m ³
	15 ppm
Remark	V (Vägledande korttidsgränsvärde ska användas som ett rekommenderat högsta värde som inte bör överskridas)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
Iceland - Occupational Exposure Limits	
Local name	Naftalín
OEL TWA	50 mg/m ³
	10 ppm
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway - Occupational Exposure Limits	
Local name	Naftalen
Grenseverdi (OEL TWA)	50 mg/m ³
	10 ppm
Korttidsverdi (OEL STEL)	75 mg/m ³ (value calculated)
	20 ppm (value calculated)
Remark	E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
Regulatory reference	FOR-2023-12-18-2278
North Macedonia - Occupational Exposure Limits	
Local name	нафталин
OEL TWA	50 mg/m ³
	10 ppm
Remark	(EU) European Union – гранична вредност, определена на ниво на Европската унија
Regulatory reference	Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанции („Службен весник на Република Македонија“ бр.46/10)
Switzerland - Occupational Exposure Limits	
Local name	Naphtalène / Naphthalin
MAK (OEL TWA)	50 mg/m ³ (aerosol, vapour)

	SAFETY DATA SHEET	Page : 32 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

naphthalene (91-20-3)	
	10 ppm (aerosol, vapour)
Notation	R, C2 / H, C2
Remark	NIOSH, OSHA. La substance peut être présente sous forme de vapeur et d'aérosol en même temps / NIOSH, OSHA. Der Stoff kann gleichzeitig als Dampf und Aerosol vorliegen
OEL chemical category	Skin notation, Category C2 carcinogen
Regulatory reference	www.suva.ch, 01.01.2024
USA - ACGIH - Occupational Exposure Limits	
Local name	Naphthalene
ACGIH® TLV® TWA	10 ppm
Remark (ACGIH)	TLV® Basis: URT irr; cararacts; hemolytic anemia. Notations: Skin; A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans); BEI
ACGIH chemical category	Confirmed Animal Carcinogen with Unknown Relevance to Humans, Skin - potential significant contribution to overall exposure by the cutaneous route
Regulatory reference	ACGIH 2024
USA - ACGIH - Biological Exposure Indices	
Local name	Naphthalene
BEI	Parameter: 1-Naphthol with hydrolysis plus 2-Naphthol with hydrolysis - Sampling time: end of shift (nonquantitative, nonspecific)
Regulatory reference	ACGIH 2024

1,2,4-trimethylbenzene (95-63-6)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	1,2,4-Trimethylbenzene
IOEL TWA	100 mg/m ³
	20 ppm
Regulatory reference	COMMISSION DIRECTIVE 2000/39/EC
Albania - Occupational Exposure Limits	
Local name	Trimetil-1,2,4-benzen
OEL TWA	100 mg/m ³
	20 ppm
Regulatory reference	VENDIM Nr. 522, datë 6.8.2014 PËR MIRATIMIN E RREGULLORES "PËR MBROJTJEN E SIGURISË DHE SHËNDETIT TË PUNËMARRËSVE NGA RISQET E LIDHURA ME AGJENTËT KIMIKË NË PUNË"
Austria - Occupational Exposure Limits	
Local name	Trimethylbenzol (alle Isomeren): 1,2,4-Trimethylbenzol
MAK (OEL TWA)	100 mg/m ³ (Trimethylbenzene all isomers)
	20 ppm (Trimethylbenzene all isomers)

	SAFETY DATA SHEET	Page : 33 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

1,2,4-trimethylbenzene (95-63-6)	
MAK (OEL STEL)	150 mg/m ³ (Trimethylbenzene)
	30 ppm (Trimethylbenzene)
Regulatory reference	BGBI. II Nr. 156/2021
Bulgaria - Occupational Exposure Limits	
Local name	1,2,4-Триметилбензен
OEL TWA	100 mg/m ³
	20 ppm
Remark	• (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност)
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.)
Croatia - Occupational Exposure Limits	
Local name	1,2,4 Trimetilbenzen
GVI (OEL TWA)	100 mg/m ³
	20 ppm
Remark	Direktiva: 2000/39/EZ
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 148/2023)
Cyprus - Occupational Exposure Limits	
Local name	1,2,4-Τριμεθυλοβενζόλιο
OEL TWA	100 mg/m ³
	20 ppm
Regulatory reference	Κανονισμοί του 2007 (Κ.Δ.Π. 295/2007)
Czech Republic - Occupational Exposure Limits	
Local name	1,2,4-Trimethylbenzen (Pseudokumen)
PEL (OEL TWA)	100 mg/m ³
	20 ppm
NPK-P (OEL C)	250 mg/m ³
	50 ppm
Remark	I - dráždí sliznice (oči, dýchací cesty) resp. kůži.
OEL chemical category	Potential for cutaneous absorption
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 330/2023 Sb.)
Denmark - Occupational Exposure Limits	
Local name	1,2,4-Trimethylbenzen
OEL TWA	100 mg/m ³ (Trimethylbenzenes)
	20 ppm (Trimethylbenzenes)

	SAFETY DATA SHEET	Page : 34 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

1,2,4-trimethylbenzene (95-63-6)	
OEL STEL	200 mg/m ³ (Trimethylbenzenes) 40 ppm (Trimethylbenzenes)
Remark	E (betyder, at stoffet har en EF-grænseværdi)
Regulatory reference	BEK nr 202 af 21/02/2023
Estonia - Occupational Exposure Limits	
Local name	1,2,4-trimetüülbenseen
OEL TWA	100 mg/m ³ 20 ppm
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 21.12.2022, 3)
Finland - Occupational Exposure Limits	
Local name	1,2,4-Trimetyylibentseeni
HTP (OEL TWA)	100 mg/m ³ 20 ppm
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö)
France - Occupational Exposure Limits	
Local name	1,2,4-Triméthylbenzène
VME (OEL TWA)	100 mg/m ³ (restrictive limit) 20 ppm (restrictive limit)
VLE (OEL C/STEL)	250 mg/m ³ (restrictive limit) 50 ppm (restrictive limit)
Remark	Valeurs réglementaires contraignantes
Regulatory reference	Article R4412-149 du Code du travail (réf.: INRS ED 6443, 2022; Outil65; Décret n° 2019-1487; Décret n° 2020-1546; Décret n° 2021-434; Décret n° 2021-1849)
France - Biological limit values	
BLV	Parameter: Total Dimethylbenzoic acids (after hydrolysis) in urine - Medium: urine - Sampling time: end of shift after several shifts (per the Authority, the values for this substance must be decided and/or determined on a case by case basis. Guidance for the calculation of and interpretation of values is provided in the source)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	1,2,4-Trimethylbenzol
Occupational exposure limit value (mg/m ³) (TRGS900)	100 mg/m ³ (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Occupational exposure limit value (ppm) (TRGS900)	20 ppm (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Peak exposure limitation factor	2(II)

	SAFETY DATA SHEET	Page : 35 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

1,2,4-trimethylbenzene (95-63-6)	
Remark	DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission); EU - Europäische Union (Von der EU wurde ein Luftgrenzwert festgelegt: Abweichungen bei Wert und Spitzenbegrenzung sind möglich); Y - Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden
Regulatory reference	TRGS900
Germany - Biological limit values (TRGS 903)	
Local name	Trimethylbenzol (alle Isomeren): 1,2,4-Trimethylbenzol
Biological limit value	400 mg/g creatinine Parameter: Dimethylbenzoic acid (sum of all isomers after hydrolysis) - Medium: urine - Sampling time: end of shift 400 mg/g creatinine Parameter: Dimethylbenzoic acid (sum of all isomers after hydrolysis) - Medium: urine - Sampling time: for long-term exposures: at the end of the shift after several shifts
Remark	Alle Isomeren: 1,2,3-Trimethylbenzol, 1,2,4-Trimethylbenzol, Mesitylen (1,3,5-Trimethylbenzol)
Regulatory reference	TRGS 903
Gibraltar - Occupational Exposure Limits	
Local name	1,2,4-Trimethylbenzene
OEL TWA	100 mg/m ³ 20 ppm
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Greece - Occupational Exposure Limits	
Local name	Τριμεθυλο-βενζόλιο, 1,2,4-
OEL TWA	125 mg/m ³ 25 ppm
Regulatory reference	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Hungary - Occupational Exposure Limits	
Local name	1,2,4-TRIMETILBENZOL
AK (OEL TWA)	100 mg/m ³
Remark	EU1 (2000/39/EK irányelvben közölt érték); T (Azok az anyagok, amelyek egészségkárosító hatása TARTÓS expozíciót követően jelentkezik)
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Ireland - Occupational Exposure Limits	
Local name	1,2,4-Trimethylbenzene
OEL TWA	100 mg/m ³ 20 ppm
OEL STEL	300 mg/m ³ (calculated)

	SAFETY DATA SHEET	Page : 36 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

1,2,4-trimethylbenzene (95-63-6)	
	60 ppm (calculated)
Remark	IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2021
Italy - Occupational Exposure Limits	
Local name	1,2,4-Trimetilbenzene
OEL TWA	100 mg/m ³
	20 ppm
Regulatory reference	Allegato XXXVIII del D.Lgs. 9 aprile 2008, n. 81 e s.m.i.
Latvia - Occupational Exposure Limits	
Local name	1,2,4-Trimetilbenzols (pseudokumols)
OEL TWA	100 mg/m ³
	20 ppm
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325
Luxembourg - Occupational Exposure Limits	
Local name	1,2,4-Triméthylbenzène
OEL TWA	100 mg/m ³
	20 ppm
Regulatory reference	Mémorial A N° 226 de 2021 concernant la protection de la sécurité et de la santé des salariés contre les risques liés à des agents chimiques sur le lieu de travail
Malta - Occupational Exposure Limits	
Local name	1,2,4-Trimethylbenzene
OEL TWA	100 mg/m ³
	20 ppm
Regulatory reference	S.L.424.24 - Chemical Agents at Work Regulations (L.N.356 of 2021)
Netherlands - Occupational Exposure Limits	
Local name	1,2,4-Trimethylbenzeen
TGG-8u (OEL TWA)	100 mg/m ³
	20 ppm
TGG-15min (OEL STEL)	200 mg/m ³
	40 ppm
Regulatory reference	Arbeidsomstandighedenregeling 2024
Poland - Occupational Exposure Limits	
Local name	Trimetylobenzen - mieszanina izomerów (1,2,4-)
NDS (OEL TWA)	100 mg/m ³
NDSch (OEL STEL)	170 mg/m ³ (Trimethylbenzene, mixture of isomers)

	SAFETY DATA SHEET	Page : 37 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

1,2,4-trimethylbenzene (95-63-6)	
Remark	Skóra (Oznakowanie substancji notacją „skóra” oznacza, że wchłanianie substancji przez skórę może być tak samo istotne jak przy narażeniu drogą oddechową).
Regulatory reference	Dz. U. 2018 poz. 1286 wraz z późn. zm.
Portugal - Occupational Exposure Limits	
OEL TWA	100 mg/m ³ (indicative limit value)
	20 ppm (indicative limit value)
Romania - Occupational Exposure Limits	
Local name	1,2,4-trimetilbenzen
OEL TWA	100 mg/m ³
	20 ppm
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021)
Serbia - Occupational Exposure Limits	
Local name	1,2,4-триметилбензен
OEL TWA	100 mg/m ³
	20 ppm
Remark	EY* – напомена да се ради о хемијским материјама за које су утврђене индикативне граничне вредности изложености према Директиви 2000/39/EЗ (прва листа)
Regulatory reference	ПРАВИЛНИК о превентивним мерама за безбедан и здрав рад при излагању хемијским материјама („Службени гласник РС”, бр. 106/09, 117/17 и 107/21)
Slovakia - Occupational Exposure Limits	
Local name	Trimetylbenzén (mezitylén) všetky izoméry
NPHV (OEL TWA)	100 mg/m ³
	20 ppm
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	1,2,4-trimetilbenzen
OEL TWA	100 mg/m ³
	20 ppm
OEL STEL	200 mg/m ³
	40 ppm
Remark	Y (Snovi, pri katerih ni nevarnosti za zarodek ob upoštevanju mejnih vrednosti in bat vrednosti), BAT (Biološka mejna vrednost), EU
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Slovenia - Biological limit values	
Local name	trimetilbenzen (vse izomere): 1,2,4-trimetilbenzen

	SAFETY DATA SHEET	Page : 38 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

1,2,4-trimethylbenzene (95-63-6)	
BLV	400 mg/g creatinine Parameter: dimetilbenzojska kislina (vse izomere po hidrolizi) - Biološki vzorec: urin - Čas vzorčenja: ob koncu delovne izmene, pri dolgotrajni izpostavljenosti: ob koncu delovne izmene po več zaporednih delavnikih
Regulatory reference	Uradni list RS, št. 72/2021 z dne 11.5.2021
Spain - Occupational Exposure Limits	
Local name	1,2,4-Trimetilbenceno
VLA-ED (OEL TWA)	100 mg/m ³ (indicative limit value)
	20 ppm (indicative limit value)
Remark	VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2024. INSHT
Sweden - Occupational Exposure Limits	
Local name	1,2,4-Trimetylbenzen
NGV (OEL TWA)	100 mg/m ³ (Trimethylbenzenes)
	20 ppm (Trimethylbenzenes)
KGV (OEL STEL)	170 mg/m ³ (Trimethylbenzenes)
	35 ppm (Trimethylbenzenes)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
Iceland - Occupational Exposure Limits	
Local name	Trímetýlbensen
OEL TWA	100 mg/m ³
	20 ppm
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway - Occupational Exposure Limits	
Local name	1,2,4-trimetylbenzen
Grenseverdi (OEL TWA)	100 mg/m ³
	20 ppm
Korttidsverdi (OEL STEL)	150 mg/m ³ (value calculated)
	30 ppm (value calculated)
Remark	E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.
Regulatory reference	FOR-2023-12-18-2278
North Macedonia - Occupational Exposure Limits	
Local name	1,2,4-триметилбензен
OEL TWA	100 mg/m ³
	20 ppm

	SAFETY DATA SHEET	Page : 39 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

1,2,4-trimethylbenzene (95-63-6)	
Remark	(EU) European Union – гранична вредност, определена на ниво на Европската унија
Regulatory reference	Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанции („Службен весник на Република Македонија” бр.46/10)
USA - ACGIH - Occupational Exposure Limits	
Local name	1,2,4-Trimethyl benzene
ACGIH® TLV® TWA	10 ppm (Trimethylbenzene, isomers)
Remark (ACGIH)	TLV® Basis: CNS impair; hematologic eff. Notations: A4 (Not classifiable as a Human Carcinogen)
ACGIH chemical category	Not Classifiable as a Human Carcinogen
Regulatory reference	ACGIH 2024

ethanediol; ethylene glycol (107-21-1)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Ethylene glycol
IOEL TWA	52 mg/m ³
	20 ppm
IOEL STEL	104 mg/m ³
	40 ppm
Remark	Possibility of significant uptake through the skin
Regulatory reference	COMMISSION DIRECTIVE 2000/39/EC
Austria - Occupational Exposure Limits	
MAK (OEL TWA)	26 mg/m ³
	10 ppm
MAK (OEL STEL)	52 mg/m ³
	20 ppm
OEL chemical category	Skin notation
Belgium - Occupational Exposure Limits	
Local name	Ethylèneglycol (en aérosol) # Ethyleenglycol
OEL TWA	52 mg/m ³ (aerosol)
	20 ppm (aerosol)
OEL STEL	104 mg/m ³ (aerosol)
	40 ppm (aerosol)

	SAFETY DATA SHEET	Page : 40 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

ethanediol; ethylene glycol (107-21-1)	
Remark	D: la mention "D" signifie que la résorption de l'agent, via la peau, les muqueuses ou les yeux, constitue une partie importante de l'exposition totale. Cette résorption peut se faire tant par contact direct que par présence de l'agent dans l'air, M: la mention "M" indique que lors d'une exposition supérieure à la valeur limite, des irritations apparaissent ou un danger d'intoxication aiguë existe. Le procédé de travail doit être conçu de telle façon que l'exposition ne dépasse jamais la valeur limite. Lors des mesurages, la période d'échantillonnage doit être aussi courte que possible afin de pouvoir effectuer des mesurages fiables. Le résultat des mesurages est calculé en fonction de la période d'échantillonnage. # D: de vermelding "D" betekent dat de opname van het agens via de huid, de slijmvliezen of de ogen een belangrijk deel van de totale blootstelling vormt. Deze opname kan het gevolg zijn van zowel direct contact als zijn aanwezigheid in de lucht, M: de vermelding "M" duidt aan dat bij de blootstelling boven de grenswaarde irritatie optreedt of er gevaar bestaat voor acute vergiftiging. Het werkproces moet zo zijn ontworpen dat de blootstelling de grenswaarde nooit overschrijdt. Bij een controle geldt dat de bemonsterde periode zo kort mogelijk moet zijn om een betrouwbare meting te kunnen verrichten. Het meetresultaat wordt dan gerelateerd aan de beschouwde periode.
OEL chemical category	Skin, Skin notation
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023
Bulgaria - Occupational Exposure Limits	
OEL TWA	52 mg/m ³
	20 ppm
OEL STEL	104 mg/m ³
	40 ppm
Croatia - Occupational Exposure Limits	
GVI (OEL TWA)	52 mg/m ³
	20 ppm
KGVI (OEL STEL)	104 mg/m ³
	40 ppm
OEL chemical category	Skin notation
Cyprus - Occupational Exposure Limits	
OEL TWA	52 mg/m ³
	20 ppm
OEL STEL	104 mg/m ³
	40 ppm
OEL chemical category	Skin-potential for cutaneous absorption
Czech Republic - Occupational Exposure Limits	
PEL (OEL TWA)	50 mg/m ³
OEL chemical category	Potential for cutaneous absorption

	SAFETY DATA SHEET	Page : 41 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

ethanediol; ethylene glycol (107-21-1)	
Denmark - Occupational Exposure Limits	
OEL TWA	26 mg/m ³ 10 mg/m ³ (atomized) 10 ppm
OEL STEL	104 mg/m ³ 20 mg/m ³ (atomized) 40 ppm
OEL chemical category	Potential for cutaneous absorption
Estonia - Occupational Exposure Limits	
OEL TWA	52 mg/m ³ (total concentration of aerosol and vapor) 20 ppm (total concentration of aerosol and vapor)
OEL STEL	104 mg/m ³ (total concentration of aerosol and vapor) 40 ppm (total concentration of aerosol and vapor)
OEL chemical category	Skin notation
Finland - Occupational Exposure Limits	
HTP (OEL TWA)	50 mg/m ³ 20 ppm
HTP (OEL STEL)	100 mg/m ³ 40 ppm
OEL chemical category	Potential for cutaneous absorption
France - Occupational Exposure Limits	
VME (OEL TWA)	52 mg/m ³ (indicative limit-vapor) 20 ppm (indicative limit-vapor)
VLE (OEL C/STEL)	104 mg/m ³ (indicative limit-vapor) 40 ppm (indicative limit-vapor)
OEL chemical category	Risk of cutaneous absorption
Germany - Occupational Exposure Limits (TRGS 900)	
Occupational exposure limit value (mg/m ³) (TRGS900)	26 mg/m ³ (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Occupational exposure limit value (ppm) (TRGS900)	10 ppm (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Chemical category	Skin notation
Gibraltar - Occupational Exposure Limits	
OEL TWA	52 mg/m ³ 20 ppm
OEL STEL	104 mg/m ³ 40 ppm

	SAFETY DATA SHEET	Page : 42 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

ethanediol; ethylene glycol (107-21-1)	
OEL chemical category	Skin notation
Greece - Occupational Exposure Limits	
OEL TWA	125 mg/m ³ (vapor)
	50 ppm (vapor)
OEL STEL	125 mg/m ³ (vapor)
	50 ppm (vapor)
Hungary - Occupational Exposure Limits	
AK (OEL TWA)	52 mg/m ³
CK (OEL STEL)	104 mg/m ³
OEL chemical category	Potential for cutaneous absorption
Ireland - Occupational Exposure Limits	
OEL TWA	52 mg/m ³
	20 ppm
OEL STEL	104 mg/m ³
	40 ppm
OEL chemical category	Potential for cutaneous absorption
Italy - Occupational Exposure Limits	
OEL TWA	52 mg/m ³
	20 ppm
OEL STEL	104 mg/m ³
	40 ppm
OEL chemical category	skin - potential for cutaneous absorption
Latvia - Occupational Exposure Limits	
OEL TWA	52 mg/m ³
	20 ppm
OEL chemical category	skin - potential for cutaneous exposure
Lithuania - Occupational Exposure Limits	
IPRV (OEL TWA)	25 mg/m ³ (aerosol and vapor)
	10 ppm (aerosol and vapor)
TPRV (OEL STEL)	50 mg/m ³ (aerosol and vapor)
	20 ppm (aerosol and vapor)
OEL chemical category	Skin notation
Luxembourg - Occupational Exposure Limits	
OEL TWA	52 mg/m ³
	20 ppm
OEL STEL	104 mg/m ³

	SAFETY DATA SHEET	Page : 43 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

ethanediol; ethylene glycol (107-21-1)	
	40 ppm
OEL chemical category	Possibility of significant uptake through the skin
Malta - Occupational Exposure Limits	
OEL TWA	52 mg/m ³
	20 ppm
OEL STEL	104 mg/m ³
	40 ppm
OEL chemical category	Possibility of significant uptake through the skin
Netherlands - Occupational Exposure Limits	
TGG-8u (OEL TWA)	52 mg/m ³ (vapour)
	10 mg/m ³ (droplets)
TGG-15min (OEL STEL)	104 mg/m ³ (vapour)
	40 ppm (vapour)
MAC chemical category	Skin notation vapour
Poland - Occupational Exposure Limits	
NDS (OEL TWA)	15 mg/m ³
NDSch (OEL STEL)	50 mg/m ³
Portugal - Occupational Exposure Limits	
OEL TWA	52 mg/m ³ (indicative limit value)
	20 ppm (indicative limit value)
OEL STEL	104 mg/m ³ (indicative limit value)
	40 ppm (indicative limit value)
OEL C	100 mg/m ³ (aerosol only)
OEL chemical category	A4 - Not Classifiable as a Human Carcinogen, skin - potential for cutaneous exposure indicative limit value
Romania - Occupational Exposure Limits	
OEL TWA	52 mg/m ³
	20 ppm
OEL STEL	104 mg/m ³
	40 ppm
OEL chemical category	Skin notation
Slovakia - Occupational Exposure Limits	
NPHV (OEL TWA)	52 mg/m ³
	20 ppm
NPHV (OEL C)	104 mg/m ³
OEL chemical category	Potential for cutaneous absorption

	SAFETY DATA SHEET	Page : 44 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

ethanediol; ethylene glycol (107-21-1)	
Slovenia - Occupational Exposure Limits	
OEL TWA	52 mg/m ³
	20 ppm
OEL STEL	104 mg/m ³
	40 ppm
OEL chemical category	Potential for cutaneous absorption
Spain - Occupational Exposure Limits	
VLA-ED (OEL TWA)	52 mg/m ³ (indicative limit value)
	20 ppm (indicative limit value)
VLA-EC (OEL STEL)	104 mg/m ³
	40 ppm
OEL chemical category	skin - potential for cutaneous absorption
Sweden - Occupational Exposure Limits	
NGV (OEL TWA)	25 mg/m ³ (limit value applies to the combined concentration of vapor and aerosol-aerosol and vapor)
	10 ppm (limit value applies to the combined concentration of vapor and aerosol-aerosol and vapor)
KGV (OEL STEL)	104 mg/m ³ (limit value applies to the combined concentration of vapor and aerosol-aerosol and vapor)
	40 ppm (limit value applies to the combined concentration of vapor and aerosol-aerosol and vapor)
OEL chemical category	Skin notation
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA)	10 mg/m ³ (particulates)
	52 mg/m ³ (vapour)
	20 ppm (vapour)
WEL STEL (OEL STEL)	104 mg/m ³ (vapour)
	30 mg/m ³ (calculated-particulate)
	40 ppm (vapour)
WEL chemical category	Potential for cutaneous absorption
Norway - Occupational Exposure Limits	
Grenseverdi (OEL TWA)	52 mg/m ³ (total sum of gas and particulate matter (aerosol) of the substance)
	20 ppm (total sum of gas and particulate matter (aerosol) of the substance)
Kortidsverdi (OEL STEL)	104 mg/m ³ (total sum of gas and particulate matter (aerosol) of the substance)
	40 ppm (total sum of gas and particulate matter (aerosol) of the substance)
OEL chemical category	Skin notation

	SAFETY DATA SHEET	Page : 45 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

ethanediol; ethylene glycol (107-21-1)	
Switzerland - Occupational Exposure Limits	
MAK (OEL TWA)	26 mg/m ³ (aerosol, vapour)
	10 ppm (aerosol, vapour)
KZGW (OEL STEL)	52 mg/m ³ (aerosol, vapour)
	20 ppm (aerosol, vapour)
OEL chemical category	Skin notation
USA - ACGIH - Occupational Exposure Limits	
ACGIH® TLV® TWA	25 ppm (vapor fraction)
ACGIH® TLV® STEL	10 mg/m ³ (inhalable particulate matter, aerosol only)
	50 ppm (vapor fraction)
ACGIH chemical category	Not Classifiable as a Human Carcinogen

8.1.2. Recommended monitoring procedures

Monitoring methods	
Monitoring methods	Personal air monitoring. Room air monitoring.

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

Additional information : Recommended monitoring procedures :. Personal air monitoring. Room air monitoring

8.1.5. Control banding

No additional information available

8.2. Exposure controls

Engineering measure(s) : Organisational measures to prevent/limit releases, dispersion and exposure. See Section 7 for information on safe handling. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use only outdoors or in a well-ventilated area. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharges.

Personal protective equipment : The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

	SAFETY DATA SHEET	Page : 46 / 61
		Revision nr : 4.0
		Issue date : 17/06/2025
	Power Tune® - Internal Engine Cleaner	Supersedes : 11/08/2023 766-01-0107S

Hand protection	: Wear chemically resistant gloves (tested to EN374) . Suitable material: Not determined. Breakthrough time : refer to the recommendations of the supplier. Thickness : Not determined. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.
Eye protection	: Use suitable eye protection (EN166): goggles. face shield
Body protection	: Wear suitable coveralls to prevent exposure to the skin. (Use chemically protective clothing)
Respiratory protection	: In case of insufficient ventilation, wear suitable respiratory equipment. Half-face mask (DIN EN 140). full face mask (DIN EN 136). Filter type: ABEK + P (EN 14387). The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used. (EN 137)
Thermal hazard protection	: Not required for normal conditions of use. Use dedicated equipment.
Environmental exposure controls	: Avoid release to the environment. Comply with applicable Community environmental protection legislation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: No data available.
Appearance	: Aerosol.
Odour	: No data available.
Odour threshold	: No data available
Melting / freezing point	: No data available
Freezing point	: Not available
Initial boiling point and boiling range	: No data available
Flammability	: Extremely flammable aerosol.
Explosive properties	: Not applicable. The study does not need to be conducted because there are no chemical groups associated with explosive properties present in the molecule.
Oxidising properties	: Not applicable. The classification procedure needs not to be applied because there are no chemical groups present in the molecule which are associated with oxidising properties.
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
pH	: No data available
Kinematic viscosity	: No data available
Dynamic viscosity	: No data available
Solubility	: Water: No data available
Partition coefficient n-octanol/water (Log Kow)	: Not available
Partition coefficient n-octanol/water	: No data available

	SAFETY DATA SHEET	Page : 47 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

Vapour pressure	: No data available
Vapour pressure at 50°C	: Not available
Density	: Not available
Relative density	: No data available
Vapour density	: No data available
Particle characteristics	: Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

% of flammable ingredients	: 69 %
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9.2.2. Other safety characteristics

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Extremely flammable aerosol. Reference to other sections: 10.4 & 10.5.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Will ignite if exposed to intensive heat and air. Risk of explosion by shock, friction, fire or other sources of ignition.

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid temperature above 50 °C. Protect from sunlight. See Section 7 for information on safe handling.

10.5. Incompatible materials

oxidising substances. See Section 7 for information on safe handling.

10.6. Hazardous decomposition products

Reference to other sections 5.2.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Harmful in contact with skin.
Acute toxicity (inhalation)	: Inhalation:dust,mist: Harmful if inhaled.

Power Tune® - Internal Engine Cleaner	
ATE CLP (dermal)	1879,76 mg/kg bodyweight
ATE CLP (dust,mist)	2,321 mg/l/4h

	SAFETY DATA SHEET	Page : 48 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

2-butoxyethanol; ethylene glycol monobutyl ether (111-76-2)	
LD50/oral/rat	470 mg/kg (Source: NLM_CIP)
LD50/dermal/rabbit	435 mg/kg (Source: OECD_SIDS)
LC50/inhalation/4h/rat (ppm)	486 ppm/4h

Oleic acid (112-80-1)	
LD50/oral/rat	25 g/kg (Source: NLM_CIP)

morpholine (110-91-8)	
LD50/oral/rat	1050 mg/kg (Source: JAPAN_GHS)
LD50/dermal/rabbit	310 – 810 mg/kg (Source: JAPAN_GHS)
LC50/inhalation/4h/rat (ppm)	> 8000 ppm (Exposure time: 8 h Source: IARC)

naphthalene (91-20-3)	
LD50/oral/rat	1110 mg/kg (Source: JAPAN_GHS)
LD50/dermal/rat	> 2500 mg/kg
LD50/dermal/rabbit	1120 mg/kg (Source: NZ_CCID)
LC50/inhalation/4h/rat	> 0,4 mg/l/4h
LC50/inhalation/4h/rat (ppm)	> 0,4 mg/l
LD50, acute, oral, mouse, male	533 mg/kg
LD50, acute, oral, mouse, female	710 mg/kg

1,2,4-trimethylbenzene (95-63-6)	
LD50/oral/rat	3280 mg/kg (Source: NZ_CCID)
LD50/dermal/rat	3440 mg/kg No mortality observed at this dose.
LD50/dermal/rabbit	> 3160 mg/kg (Source: IUCLID)
LC50/inhalation/4h/rat	18 g/m ³ (Exposure time: 4 h Source: NLM_CIP)
LC50 Inhalation - Rat (Vapours)	10,2 mg/l/4h No mortality observed at this dose.

ethanediol; ethylene glycol (107-21-1)	
LD50/oral/rat	4700 mg/kg (Source: NLM_CIP)
LD50/dermal/rat	10600 mg/kg (Source: JAPAN_GHS)
LD50/dermal/rabbit	9530 µl/kg
LC50/inhalation/4h/rat	> 2,5 mg/l (Exposure time: 6 h Source: ECHA_API)

Solvent naphtha (petroleum), heavy arom. (64742-94-5)	
LD50/oral/rat	6318 mg/kg
LD50/dermal/rabbit	> 2000 mg/kg
LC50/inhalation/4h/rat	> 4778 mg/l

Skin corrosion/irritation : Causes skin irritation.
pH: No data available

	SAFETY DATA SHEET	Page : 49 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

morpholine (110-91-8)	
pH	13 (pure liquid)

Serious eye damage/irritation : Causes serious eye damage.
pH: No data available

morpholine (110-91-8)	
pH	13 (pure liquid)

Respiratory or skin sensitisation : Not classified (Based on available data, the classification criteria are not met)

Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met)

Carcinogenicity : Suspected of causing cancer.

2-butoxyethanol; ethylene glycol monobutyl ether (111-76-2)	
IARC group	3 - Not classifiable

morpholine (110-91-8)	
IARC group	3 - Not classifiable

naphthalene (91-20-3)	
IARC group	2B - Possibly carcinogenic to humans

ethanediol; ethylene glycol (107-21-1)	
NOAEL (chronic, oral, animal/male, 2 years)	1000 mg/kg bodyweight
NOAEL (chronic, oral, animal/female, 2 years)	1500 mg/kg bodyweight

Reproductive toxicity : Not classified (Based on available data, the classification criteria are not met)

STOT-single exposure : May cause drowsiness or dizziness.

1,2,4-trimethylbenzene (95-63-6)	
STOT-single exposure	May cause respiratory irritation.

Solvent naphtha (petroleum), heavy arom. (64742-94-5)	
STOT-single exposure	May cause drowsiness or dizziness.

STOT-repeated exposure : Not classified (Based on available data, the classification criteria are not met)

ethanediol; ethylene glycol (107-21-1)	
NOAEL (oral, rat, 90 days)	≥ 200 mg/kg bodyweight/day OECD Guideline 407

Solvent naphtha (petroleum), heavy arom. (64742-94-5)	
NOAEL (oral, rat, 90 days)	750 mg/kg bodyweight/day
NOAEC, Inhalation, Rat	≥ 24 mg/m ³ (28 days)
NOAEL, Rat, systemic	≥ 0.5 ml/kg (28 days)

	SAFETY DATA SHEET	Page : 50 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

Aspiration hazard : Not classified (Based on available data, the classification criteria are not met)

Power Tune® - Internal Engine Cleaner	
Vaporizer	Aerosol
Kinematic viscosity	No data available

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Adverse health effects caused by endocrine disrupting properties : The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

11.2.2. Other information

Other information : Symptoms related to the physical, chemical and toxicological characteristics, For further information see section 4

SECTION 12: Ecological information

12.1. Toxicity

Environmental properties : Toxic to aquatic life with long lasting effects.

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Toxic to aquatic life with long lasting effects.

2-butoxyethanol; ethylene glycol monobutyl ether (111-76-2)	
LC50 - Fish [1]	1490 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static] Source: EPA)
LC50 - Fish [2]	2950 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus Source: IUCLID)
EC50 - Crustacea [1]	> 1000 mg/l (Exposure time: 48 h - Species: Daphnia magna)

Oleic acid (112-80-1)	
LC50 - Fish [1]	205 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static] Source: EPA)

morpholine (110-91-8)	
LC50 - Fish [1]	350 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static] Source: EPA)
LC50 - Fish [2]	375 – 460 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss Source: EPA)
EC50 96h - Algae [1]	28 mg/l (Species: Pseudokirchneriella subcapitata [static])

	SAFETY DATA SHEET	Page : 51 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

naphthalene (91-20-3)	
LC50 - Fish [1]	5,74 – 6,44 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through] Source: EPA)
LC50 - Fish [2]	0,11 mg/l Oncorhynchus mykiss
EC50 - Crustacea [1]	2,16 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 - Crustacea [2]	1,96 mg/l (Exposure time: 48 h - Species: Daphnia magna [Flow through])
EC50 - Other aquatic organisms [1]	0,4 mg/l (72 h - Skeletonema costatum)
EC50 96h - Algae [1]	2,96 mg/l (Pseudokirchneriella subcapitata)

1,2,4-trimethylbenzene (95-63-6)	
LC50 - Fish [1]	7,19 – 8,28 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through] Source: EPA)
EC50 - Crustacea [1]	6,14 mg/l (Exposure time: 48 h - Species: Daphnia magna)

ethanediol; ethylene glycol (107-21-1)	
LC50 - Fish [1]	41000 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss Source: IUCLID)
LC50 - Fish [2]	14 – 18 ml/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static] Source: EPA)
EC50 - Crustacea [1]	46300 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 96h - Algae [1]	6500 – 13000 mg/l (Species: Pseudokirchneriella subcapitata)
NOEC (chronic)	15380 mg/l @ 7d Pimephales promelas

Solvent naphtha (petroleum), heavy arom. (64742-94-5)	
LC50 - Fish [1]	3,6 mg/l (96h) Oncorhynchus mykiss (Rainbow trout)
LC50 - Fish [2]	2,34 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss Source: IUCLID)
EC50 - Crustacea [1]	0,95 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 72h - Algae [1]	3,8 mg/l
ErC50 algae	1,3 mg/l (72h)
NOELR, Oncorhynchus mykiss (Rainbow trout)	0,103 mg/l (28 days)
NOELR, daphnia	0.179 mg/l (21 days)

12.2. Persistence and degradability

Power Tune® - Internal Engine Cleaner	
Persistence and degradability	No additional information available.

2-butoxyethanol; ethylene glycol monobutyl ether (111-76-2)	
Biochemical oxygen demand (BOD)	(BOD-5) 1,3 g O ₂ /g substance

	SAFETY DATA SHEET	Page : 52 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

2-butoxyethanol; ethylene glycol monobutyl ether (111-76-2)	
Chemical oxygen demand (COD)	2,18 g O ₂ /g substance

naphthalene (91-20-3)	
Persistence and degradability	Readily biodegradable.

ethanediol; ethylene glycol (107-21-1)	
Persistence and degradability	Readily biodegradable.

Solvent naphtha (petroleum), heavy arom. (64742-94-5)	
Persistence and degradability	Readily biodegradable.

12.3. Bioaccumulative potential

Power Tune® - Internal Engine Cleaner	
Partition coefficient n-octanol/water	No data available
Bioaccumulative potential	No additional information available.

2-butoxyethanol; ethylene glycol monobutyl ether (111-76-2)	
Partition coefficient n-octanol/water	0,81 (at 25 °C (at pH 7)

morpholine (110-91-8)	
BCF - Fish [1]	0,3 – 2,8
Partition coefficient n-octanol/water	-0,84 (at 25 °C (at pH 10.3)

naphthalene (91-20-3)	
BCF - Fish [1]	36,5 – 168 (whole body w.w.)
Partition coefficient n-octanol/water	3,4 (at 25 °C (at pH 7-7.5)
Bioaccumulative potential	Moderately bioaccumulative.

1,2,4-trimethylbenzene (95-63-6)	
Partition coefficient n-octanol/water	3,63

ethanediol; ethylene glycol (107-21-1)	
Partition coefficient n-octanol/water	-1,36
Bioaccumulative potential	Does not bioaccumulate.

Solvent naphtha (petroleum), heavy arom. (64742-94-5)	
BCF - Fish [1]	61 – 159
Partition coefficient n-octanol/water	2,8 – 6,5 (at 23 °C (at pH 6.2)
Bioaccumulative potential	No additional information available.

	SAFETY DATA SHEET	Page : 53 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

12.4. Mobility in soil

Power Tune® - Internal Engine Cleaner	
Mobility in soil	No data available
Ecology - soil	No data available.

Solvent naphtha (petroleum), heavy arom. (64742-94-5)	
Ecology - soil	No additional information available.

12.5. Results of PBT and vPvB assessment

Power Tune® - Internal Engine Cleaner	
Results of PBT assessment	Contains no PBT and/or vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

12.6. Endocrine disrupting properties

Adverse effects on the environment caused by endocrine disrupting properties : The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %.

12.7. Other adverse effects

Other adverse effects : No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations : Avoid release to the environment. Dispose of empty containers and wastes safely. See Section 7 for information on safe handling. Refer to manufacturer/supplier for information on recovery/recycling. Recycling is preferred to disposal or incineration. If recycling is not possible, eliminate in accordance with local valid waste disposal regulations. Handle contaminated packages in the same way as the substance itself. Dispose of contaminated materials in accordance with current regulations. Packaging contaminated by the product : Dispose in a safe manner in accordance with local/national regulations. Do not pierce or burn, even after use. Never use pressure to empty container.

European waste catalogue (2001/573/EC, 75/442/EEC, 91/689/EEC) : This material and its container must be disposed of as hazardous waste. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
1950	1950	1950	1950	1950
14.2. UN proper shipping name				
AEROSOLS	AEROSOLS	Aerosols, flammable	AEROSOLS	AEROSOLS

	SAFETY DATA SHEET	Page : 54 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

ADR	IMDG	IATA	ADN	RID
Transport document description				
UN 1950 AEROSOLS, 2.1, (D), ENVIRONMENTALLY HAZARDOUS	UN 1950 AEROSOLS, 2.1, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS	UN 1950 Aerosols, flammable, 2.1, ENVIRONMENTALLY HAZARDOUS	UN 1950 AEROSOLS, 2.1, ENVIRONMENTALLY HAZARDOUS	UN 1950 AEROSOLS, 2.1, ENVIRONMENTALLY HAZARDOUS
14.3. Transport hazard class(es)				
2.1	2.1	2.1	2.1	2.1
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Dangerous for the environment : Yes	Dangerous for the environment : Yes Marine pollutant : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes
No supplementary information available				

14.6. Special precautions for user

Special precautions for user : No data available

- Overland transport

Classification code (ADR) : 5F
 Special provisions : 190, 327, 344, 625
 Limited quantities (ADR) : 1I
 Excepted quantities (ADR) : E0
 Packing instructions (ADR) : P207
 Special packing provisions (ADR) : PP87, RR6, L2
 Mixed packing provisions (ADR) : MP9
 Transport category (ADR) : 2
 Special provisions for carriage - Packages (ADR) : V14
 Special provisions for carriage - Loading, unloading and handling (ADR) : CV9, CV12
 Special provisions for carriage - Operation (ADR) : S2
 Tunnel restriction code : D

- Transport by sea

Special provisions (IMDG) : 63, 190, 277, 327, 344, 381, 959
 Limited quantities (IMDG) : SP277
 Excepted quantities (IMDG) : E0
 Packing instructions (IMDG) : P207, LP200
 Special packing provisions (IMDG) : PP87, L2
 EmS-No. (Fire) : F-D

	SAFETY DATA SHEET	Page : 55 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

EmS-No. (Spillage) : S-U
 Stowage category (IMDG) : None
 Stowage and handling (IMDG) : SW1, SW22
 Segregation (IMDG) : SG69

- Air transport

PCA Excepted quantities (IATA) : E0
 PCA Limited quantities (IATA) : Y203
 PCA limited quantity max net quantity (IATA) : 30kgG
 PCA packing instructions (IATA) : 203
 PCA max net quantity (IATA) : 75kg
 CAO packing instructions (IATA) : 203
 CAO max net quantity (IATA) : 150kg
 Special provisions (IATA) : A145, A167, A802
 ERG code (IATA) : 10L

- Inland waterway transport

Classification code (ADN) : 5F
 Special provisions (ADN) : 190, 327, 344, 625
 Limited quantities (ADN) : 1 L
 Excepted quantities (ADN) : E0
 Equipment required (ADN) : PP, EX, A
 Ventilation (ADN) : VE01, VE04
 Number of blue cones/lights (ADN) : 1

- Rail transport

Classification code (RID) : 5F
 Special provisions (RID) : 190, 327, 344, 625
 Limited quantities (RID) : 1L
 Excepted quantities (RID) : E0
 Packing instructions (RID) : P207, LP200
 Special packing provisions (RID) : PP87, RR6, L2
 Mixed packing provisions (RID) : MP9
 Transport category (RID) : 2
 Special provisions for carriage – Packages (RID) : W14
 Special provisions for carriage - Loading, unloading and handling (RID) : CW9, CW12
 Colis express (express parcels) (RID) : CE2
 Hazard identification number (RID) : 23

14.7. Maritime transport in bulk according to IMO instruments

Code: IBC : No data available.

	SAFETY DATA SHEET	Page : 56 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

This safety datasheet has been prepared :Not applicable.
according to Polish legislation.

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)		
Reference code	Applicable on	Entry title or description
3(a)	Power Tune® - Internal Engine Cleaner ; morpholine ; 1,2,4-trimethylbenzene ; Solvent naphtha (petroleum), heavy arom.	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F
3(b)	Power Tune® - Internal Engine Cleaner ; 2-butoxyethanol; ethylene glycol monobutyl ether ; Oleic acid ; morpholine ; 1,2,4-trimethylbenzene ; ethanediol; ethylene glycol ; Solvent naphtha (petroleum), heavy arom.	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10
3(c)	Power Tune® - Internal Engine Cleaner ; 1,2,4-trimethylbenzene ; Solvent naphtha (petroleum), heavy arom.	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard class 4.1
40.	morpholine ; 1,2,4-trimethylbenzene	Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

	SAFETY DATA SHEET	Page : 57 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (2024/590)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 2024/590 on substances that deplete the ozone layer)

Council Regulation (EC) for the control of dual-use items

Contains no substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items

Explosives Precursors Regulation (EU 2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (EC 273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

Detergent Regulation (648/2004/EC): Labelling of contents

Labelling for contents according to regulation (EC) No. 648/2004 : >= 30% aromatic hydrocarbons
 : >= 5% soap < 15%

Regulation (EC) No. 648/2004 : applicable
 (Detergents regulation)

15.1.2. National regulations

	SAFETY DATA SHEET	Page : 58 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

France

Occupational diseases			
Code	Description		
RG 84	Conditions caused by liquid organic solvents for professional use: saturated or unsaturated aliphatic or cyclic liquid hydrocarbons and mixtures thereof; liquid halogenated hydrocarbons; nitrated derivatives of aliphatic hydrocarbons; alcohols; glycols, glycol ethers; ketones; aldehydes; aliphatic and cyclic ethers, including tetrahydrofuran; esters; dimethylformamide and dimethylacetamine; acetonitrile and propionitrile; pyridine; dimethylsulfone and dimethylsulfoxide		
Installations classées			
No ICPE	Désignation de la rubrique	Code Régime	Rayon
4321.text	Aérosols « extrêmement inflammables » ou « inflammables » de catégorie 1 ou 2, ne contenant pas de gaz inflammable de catégorie 1 ou 2, ni de liquide inflammable de catégorie 1. La quantité totale susceptible d'être présente dans l'installation étant :		
4321.1	1. Supérieure ou égale à 5 000 t	A	1
4321.2	2. Supérieure ou égale à 500 t et inférieure à 5 000 t	D	
4321.nota	Nota.-les aérosols inflammables sont classés conformément à la directive 75/324/ CEE relative aux générateurs aérosols. Les aérosols « extrêmement inflammables » et « inflammables » de la directive 75/324/ CEE correspondent, respectivement, aux aérosols inflammables des catégories 1 et 2 du règlement (CE) n° 1272/2008. Pour pouvoir recourir à cette classification, il doit être démontré que le générateur d'aérosol ne contient pas de gaz inflammable de catégorie 1 ou 2, ni de liquide inflammable de catégorie 1.		
4511.text	Dangereux pour l'environnement aquatique de catégorie chronique 2.		
4511.1	La quantité totale susceptible d'être présente dans l'installation étant : 1. Supérieure ou égale à 200 t Quantité seuil bas au sens de l'article R. 511-10 : 200 t. Quantité seuil haut au sens de l'article R. 511-10 : 500 t.	A	1
4511.2	La quantité totale susceptible d'être présente dans l'installation étant : 2. Supérieure ou égale à 100 t mais inférieure à 200 t Quantité seuil bas au sens de l'article R. 511-10 : 200 t. Quantité seuil haut au sens de l'article R. 511-10 : 500 t.	DC	

Germany

Water hazard class (WGK)

: WGK 2, Significantly hazardous to water (Classification according to AwSV, Annex 1).

	SAFETY DATA SHEET	Page : 59 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

Major Accidents Ordinance (12. BlmSchV) : Listed in the 12. BlmSchV (Annex I) under: 1.2.3.2

- Quantity threshold for operational area under § 1 para. 1
- Sentence 1 :5000000 kg
- Sentence 2 :50000000 kg

Listed in the 12. BlmSchV (Annex I) under: 1.3.2

- Quantity threshold for operational area under § 1 para. 1
- Sentence 1 :200000 kg
- Sentence 2 :500000 kg

Netherlands

Waterbezwaarlijkheid : A (2) - Vergiftig voor in water levende organismen
kan in het aquatische milieu op lange termijn schadelijke effecten veroorzaken

SZW-lijst van kankerverwekkende stoffen : None of the components are listed

SZW-lijst van mutagene stoffen : None of the components are listed

SZW-lijst van reprotoxische stoffen – : None of the components are listed

Borstvoeding

SZW-lijst van reprotoxische stoffen – : None of the components are listed

Vruchtbaarheid

SZW-lijst van reprotoxische stoffen – : None of the components are listed

Ontwikkeling

Denmark

Danish National Regulations : Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product
The requirements from the Danish Working Environment Authorities regarding work with carcinogens must be followed during use and disposal

15.2. Chemical safety assessment

Not applicable

SECTION 16: Other information

Indication of changes:

3	REACH registration No.	Added	
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Abbreviations and acronyms:

	ABM = Algemene beoordelingsmethodiek
	ADN = Accord Européen relatif au Transport International des Marchandises Dangereuses par voie de Navigation du Rhin
	ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route
	CLP = Classification, Labelling and Packaging Regulation according to 1272/2008/EC
	IATA = International Air Transport Association
	IMDG = International Maritime Dangerous Goods Code
	LEL = Lower Explosive Limit/Lower Explosion Limit
	UEL = Upper Explosion Limit/Upper Explosive Limit
	REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
	BTT = Breakthrough time (maximum wearing time)
	DMEL = Derived Minimal Effect level
	DNEL = Derived No Effect Level
	EC50 = Median Effective Concentration
	EL50 = Median effective level
	ErC50 = EC50 in terms of reduction of growth rate
	ErL50 = EL50 in terms of reduction of growth rate
	EWC = European waste catalogue
	LC50 = Median lethal concentration

	SAFETY DATA SHEET	Page : 60 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

	LD50 = Median lethal dose
	LL50 = Median lethal level
	NA = Not applicable
	NOEC = No observed effect concentration
	NOEL: no-observed-effect level
	NOELR = No observed effect loading rate
	NOAEC = No observed adverse effect concentration
	NOAEL = No observed adverse effect level
	N.O.S. = Not Otherwise Specified
	OEL = Occupational Exposure Limits - Short Term Exposure Limits (STELs)
	PNEC = Predicted No Effect Concentration
	Quantitative structure-activity relationship (QSAR)
	STOT = Specific Target Organ Toxicity
	TWA = time weighted average
	VOC = Volatile organic compounds
	WGK = Wassergefährdungsklasse (Water Hazard Class under German Federal Water Management Act)

Sources of key data used to compile the : ECHA (European Chemicals Agency). LOLI. Supplier information. datasheet

Training advice : Training staff on good practice.

Other information : Classification - Assessment method: CLP Calculation method (Article 9).

Full text of H- and EUH-statements:

Acute Tox. 3 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 3
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aerosol 1	Aerosol, Category 1
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment – Chronic Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment – Chronic Hazard, Category 2
Asp. Tox. 1	Aspiration hazard, Category 1
Carc. 2	Carcinogenicity, Category 2
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Narcosis
H222	Extremely flammable aerosol.
H226	Flammable liquid and vapour.
H229	Pressurised container: May burst if heated.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.

	SAFETY DATA SHEET	Page : 61 / 61
		Revision nr : 4.0
	Power Tune® - Internal Engine Cleaner	Issue date : 17/06/2025
		Supersedes : 11/08/2023
		766-01-0107S

H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878
Classification according to Regulation (EC) No. 1272/2008 [CLP]
Labelling according to Regulation (EC) No. 1272/2008 [CLP]

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