



LIFE Project Number
LIFE 17 ENV/SK/000036
Akronym: LIFE – WATER and HEALTH

STRUČNÁ SPRÁVA

Certifikáty horninových materiálov a CO₂ používaných na rekarbonizáciu pitnej vody

(Aktivita B. 3: Laboratórne testy)

30. 01. 2020

S. Rapant, V. Cvečková

Nižšie uvádzame certifikát vhodnosti pre vodárenské využitie nami používaného polovypáleného dolomitu s obchodnou značkou Akdolit, vyrábaného a schváleného v Nemecku a potravinárskeho CO₂ (Messer Tatragas, spol. s r. o.). V zmysle vzájomného uznávania certifikátu v jednotlivých krajinách EÚ je tento certifikát platný aj v Slovenskej republike. Ďalej uvádzame podrobnosti o Akdolite, jeho všeobecnú charakteristiku, chemické zloženie, fyzikálne vlastnosti a ďalšie technické parametre.

Pelm, den 10.01.2019

Declaration

We hereby declare as a producer that our products

Akdolit® CM (Magno-Dol) in all grain sizes

manufactured in Germany using a quality management system according to ISO 9001.

Akdolit® CM (Magno-Dol) is an approved additive for drinking water treatment in accordance with the § 11 German Drinking Water Regulation.

Akdolit® CM (Magno-Dol) accordance with the standards

DIN EN 1017 Chemicals used for treatment of water intended for human consumption – Half-burnt dolomite;

DIN 2000 Guidelines for drawing up requirements for the design, construction, operation and maintenance of public drinking water supply systems

DIN 19 605 Design of fixed granular-bed filters for water treatment

DVGW worksheet W 213 Filtration method for particle removal,

DVGW worksheet W 214 Acidification of water

Akdolit® CM (Magno-Dol) is a product certification by:

KIWA ATA Nr. K25103/03 Akdolit® CM (Magno-Dol),
Akdolit® CM G (Gran),
Akdolit® Hydro Calcit C G

Lhoist Germany

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Sitz der Gesellschaft: Wülfrath - Registergericht: AG Wuppertal HRB 13596 - USt-IdNr.: DE121536503

Geschäftsführung: Paul Schipper (Vorsitzender), Michael Liell (stellv. Vorsitzender), Dr. Philipp Niemann

Vorsitzender des Aufsichtsrates: Joachim Rumstadt

Bank: Commerzbank AG Mettmann, SWIFT-BIC: COBADEDDXXX, IBAN: DE55 3004 0000 0820 0610 00

www.lhoist.com

Akdolit® CM (Magno Dol) Neutralisation

1. General

Akdolit® CM is an alkaline reacting filtering material comprising a splinter grain taken from selected dolomitic rock. It is used for anti-corrosion treatment by the neutralisation of water by filtration of up to pH of calcite saturation (pHc). During the process an increase in concentration of calcium, magnesium and hydrogen carbonate ions, which are physiologically and chemically favourable for corrosion, occurs.

Akdolit® CM complies with the requirements of DIN EN 1017 type A, drinking water regulation and DIN 2000. Using recommended guidelines for use, completion of insertion and continuous operation, no substances are passed which could lead to limit values of drinking water regulation being exceeded (see DVGW work sheet W 214).

Akdolit® CM can guarantee safe and economic use, requiring little maintenance due to its high reaction capacity, its stable structure and its high chemical and microbiological purity.

2. Areas of application

Akdolit® CM is utilized as chemically reacting filtering material in both open and closed fixed bed filters according to DIN 19 605

- Neutralisation and filtration of well, spring and surface water
- Neutralisation and filtration in connection with deferrisation and demanganisation
- Neutralisation and filtration of circuit water in cold, warm and hot water
- Neutralisation and filtration of water for pools and baths
- Hardening of distillate and permeate for their use in drinking water

3. Special notes on use

- 3.1** The filter plant has to be designed in such a way that continuous operation at rated capacity can be achieved. Short-time: underload by maximum 30% is allowable.
- 3.2** The splintery shape of the grain ensures a very good filtration result can be obtained. Separation of heavy metal compounds can also be achieved due to the simultaneous increase in pH value in the materials bed. As a process step after a previous filtration, Akdolit® CM can act as a fine filter for ferrous and manganese compounds as well as for other contaminants and suspended matter.
- 3.3** Unfortunately the separation of higher amounts of ferrous and manganese compounds or other suspended matter can lead to the grain surface of Akdolit® CM becoming partially blocked, which could result in the neutralisation process being obstructed. For this reason, at iron contents of > 0,5 mg/l and/or manganese contents of > 0,1 mg/l as well as at higher content of suspended matter, a subsequent filtration should be aimed at. For more complex compounds of iron and manganese, where colloids are present and/or in instances of reducing ingredients of water, our engineering department can give individual advice.
- 3.4** For underground water containing calcium sulphate, our engineering department will need to establish if Akdolit® CM will be able to produce permanent neutralisation. Such waters are characterised by low carbonate hardness and high contents of calcium and sulphate.

Akdolit® CM (Magno Dol) Neutralisation

4. Chemical and physical data

4.1 Chemical composition:

Calcium carbonate	CaCO ₃	ca.	71,2 %
Calcium oxide	CaO	ca.	0,5 %
Magnesium oxide	MgO	ca.	25,6 %
Magnesium carbonate	MgCO ₃	ca.	0,9 %
Iron oxide	Fe ₂ O ₃	□	ca. 0,6 %
Aluminium oxide	Al ₂ O ₃		
Silicic acid	SiO ₂	ca.	0,3 %
Water	H ₂ O	ca.	0,8 %

Values shown represent the average taken from regular testing carried out over several years

4.2 Grain sizes

- Grain size I 0,5 – 2,5 mm
- Grain size II 2,0 – 4,5 mm

4.3 Bulk density (storage density)

- Grain size I and II ca. 1,05 – 1,15 t/m³

4.4 Consumption

- per g CO₂* ca. 1,3 g
 - per mol Kb 8,2* ca. 57,0 g
- (including backwash losses)

4.5 Hardening

- per g/m³ CO₂* ca. 0,1 °dH
- per mol/m³ Kb 8,2* ca. 0,33 mol/m³ Ca²⁺
- per mol/m³ Kb 8,2* ca. 0,33 mol/m³ Mg²⁺
- per mol/m³ Kb 8,2* ca. 1,33 mol/m³ HCO₃⁻

* converted

5. Technical data

5.1 Quantity to be used

see work sheet E 1.2

5.2 Filter material layers

Based on analysis of the water, the calculated specific quantity to be used (according to work sheet E 1.2) and taking into consideration the filtration rate:

- with open filters 1000 - 2000 mm
- with closed filters 1500 - 3000 mm

5.3 Filtration rate

According to the specific task in hand and observing hydraulic conditions:

- with open filters up to 15 m/h
- with closed filters up to 30 m/h

5.4 Head loss during filtration

see work sheet E 1.3

5.5 Spülung (Empfehlung)

With air and water (combined)

1. Air scour ca. 60 m/h
- time: ca. 5 min

2. combined air/water backwash

- with air ca. 60 m/h
- with water ca. 8 – 12 m/h
- time: ca. 10 min

3. Water backwash ca. 20 – 25 m/h

- time: until clear water drain

4. Pre-run

5.6 Freeboard height

- with backwashing up to 5.5: ca. 300 – 500 mm

Akdolit® CM (Magno Dol)

Quantities to use

1. General

Using Akdolit® CM for the adjustment of the pH value of calcite saturation (pHc) by filtration, requires a defined contact time: between the water and the filtering material. Contact time: EBCT (Empty bed contact time:) refers to empty filter bed volume and is dependent on both the grain size of the filtering material as well as the chemical and physical characteristics of the water to be conditioned.

2. Range of application

2.1 Base capacity up to pH 8,2 (Kb 8,2)

Das Diagramm 1 berücksichtigt die Basekapazitäten by pH 8,2, at which, by observing the carbonate hardness, which already exists, neutralisation by means of filtration with Akdolit® CM is recommended. Both the required increase in the hardness of soft water and the admissible increase in hardness of semi-hard water, are taken into account. For semi-hard water with a high content of carbonic acid, the optimum range shown can be adjusted by means of an earlier mechanical step of neutralisation.

2.2 Acid capacity up to pH 4,3 (Ks 4,3)

Diagram 1 applies for ration
 $[\text{HCO}_3^-] : [\text{Ca}^{2+}] = 1 : \text{max. } 2$

2.3 Temperature

Diagram 1 is based on a water temperature of 10 °C. For other temperatures in the range between 5 °C and 15 °C, quantities to use shown in the diagram need to be multiplied by the factor given in table 1 below.

Table 1:

Water temperature [°C]	Faktor
5	1,48
6	1,35
7	1,24
8	1,15
9	1,07
10	1,00
11	0,94
12	0,88
13	0,84
14	0,79
15	0,75

2.4 Iron and manganese content

With simultaneous neutralisation, deferrisation and demanganisation, the iron and manganese content in raw water should not exceed > 0,5 mg/l and > 0,1 mg/l respectively. For raw water with higher contents of iron and manganese a subsequent filtration with subsequent neutralisation should be planned. In plants with smaller conditioning capacity, a single step conditioning for iron contents up to 2 mg/l is allowable with the following cautions. The quantity to use, under these circumstances, has to be increased by up to 100 kg per m³/h conditioning capacity. Renewing the material in such plants as and when required is economically justifiable.

2.5 Sulphate concentrations

For raw underground water containing calcium sulphate, our engineering department will need to establish if use of Akdolit® CM will be able to produce permanent neutralisation. Such waters at low alkalinity are characterised by high calcium and sulphate concentration.

Akdolit® CM (Magno Dol)

Quantities to use

3. Application of diagram 1

For values of $\text{CO}_2 < 0,10 \text{ mmol/l}$ a content of $0,10 \text{ mmol/l}$ has to be introduced.

For values of alkalinity $< 0,36 \text{ mmol/l}$ a content of $0,36 \text{ mmol/l}$ has to be introduced.

4. Calculation of quantities to use

The required contact time: can be determined from diagram 1 using the target of conditioning, by value of CO_2 and the intersection with the alkalinity curve. For the design of a plant the quantity which needs to be used can be calculated using this method (see example of calculation).

Alternatively, the quantity to be used can also be read in $\text{kg per m}^3/\text{h}$ conditioning capacity and converted into the area required. Quantities to be used for grade II are available on request.

5. Consumption

- per g CO_2^* ca. 1,3 g
 - per mol Kb 8,2* ca. 57 g
- (inclusive backwash losses)

6. Hardening

- per $\text{g/m}^3 \text{CO}_2^*$ ca. 0,1 °dH
- per $\text{mol/m}^3 \text{Kb 8,2}^*$ ca. 0,33 $\text{mol/m}^3 \text{Ca}^{2+}$
- per $\text{mol/m}^3 \text{Kb 8,2}^*$ ca. 0,33 $\text{mol/m}^3 \text{Mg}^{2+}$
- per $\text{mol/m}^3 \text{Kb 8,2}^*$ ca. 1,33 $\text{mol/m}^3 \text{HCO}_3^-$

* converted

7. Example of calculation

Result of examination of water:

Temperature	11 °C
Total hardness	6 °dH
Total alkaline earth	1,07 mol/m^3
Calcium	21,5 mg/l
Alkalinity (Ks 4,3)	1,40 mol/m^3
Alkalinity (Kb 8,2)	0,65 mol/m^3
(free carbonic acid)	28,6 mg/l

Area required:

EBCT for 10 °C in diagram 1	12,5 min
Factor for 11 °C water	× 0,94
Factor	÷ 60 min/h
Factor	× 1000 l/m^3

Area required = 195 $\text{l/m}^3/\text{h}$

Bulk weight × 1,1 kg/l

Quantity to be used = 215 $\text{kg/m}^3/\text{h}$

respectively

Quantity to be used:

for 10 °C in diagram 1	230 $\text{kg/m}^3/\text{h}$
Factor for 11 °C water temperature in table 1	× 0,94

Quantity to be used: 215 $\text{kg/m}^3/\text{h}$

Bulk weight ÷ 1,1 kg/l

Area required = 195 $\text{l/m}^3/\text{h}$

Akdolit® CM (Magno Dol)

Head loss

1. General

Akdolit® CM is a splintery dolomitic filtering material. It is being used for neutralization of water. Head loss occurring during filtration can be read in the adjacent diagram for water temperatures of 5 °C to 15 °C with sufficient accuracy necessary for planning of conditioning plants.

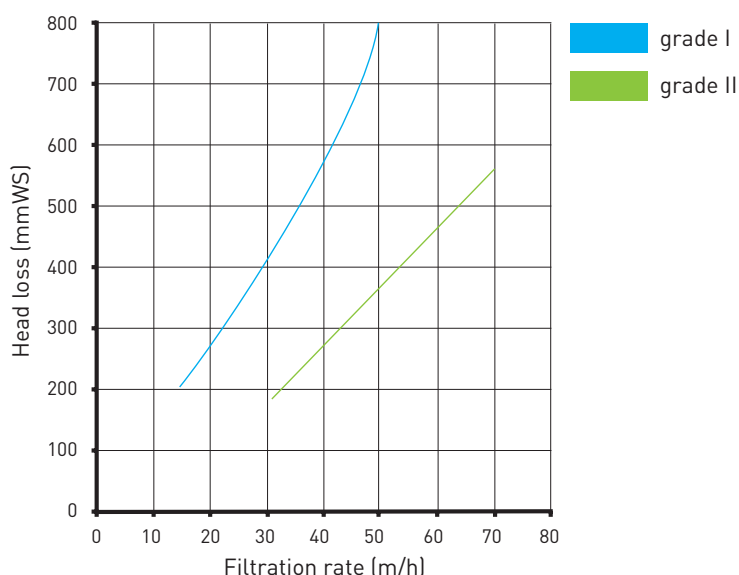
2. Head loss at filtration

Head loss is dependent on

- Grain diameter:
Head loss increases exponentially at decrease of grain diameter
- Height of layer:
Head loss increases linearly at higher layers of material
- Filtration rate:
Head loss increases at higher filtration rates
- Temperature:
Head loss increases at lower water temperatures

Diagram 1 shows head losses in dependence on filtration rates [m/h] in relation to height of layer in 1000 mm in cleanly washed filter. Values were established for materials with an average grain sizes distribution at a water temperature of 10 °C.

Diagram 1: Head loss



Experts of the Purest Water



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Akdolit® CM (Magno Dol) Operating instructions

1. General

Utilization of Akdolit® CM allows for neutralization to adjustment of calcite saturation according to drinking water regulation and filtration at the same time. Process is characterized by great operational safety and little requirement for maintenance. Its use, however, is subject to observation of construction features with respect to filtering technology according to DIN 19 605. Filter should be operated continuously. In state of standstill, the filtering material must to be completely covered with water.

2. Filling

2.1 Preparation

Before filling in materials, the strainer plate and backwash conditions have to be checked carefully. In order to do this, the filter is filled with water to about 15 - 20 cm above strainer plate and scavenging blower actuated. Rinsing air must flow evenly across the whole area.

2.2 Supporting layers

Layer height indicated by the supplier of the filtering plant and grain sizes of supporting layer material must be observed. If several different grain sizes are used, each single layer must be levelled after entering. Since bacteriological contamination cannot be excluded in handling, disinfection of supporting layers and of the complete filtering plant should be done, in order to exclude microbiological contamination out of the system. (see DVGW work sheet W 291).

2.3 Akdolit® CM

After entering, levelling and disinfecting the supporting layers, the filter is filled from below to 2/3 with water. Subsequently, Akdolit® CM is filled in hydraulically at open dirty water drain or supplied manually (see 3. Starting-up and insertion). At correct handling, disinfection of dolomitic filtering materials is not required due to high alkalinity at the grain surface in the beginning. If necessary, our engineering department should be contacted.

3. Starting-up and insertion

Before starting-up, the filtering has to be backwashed thoroughly several times and operation should be started immediately after washing. During initial operation hydration of filtering material will occur causing over alkalinization of the filtrate. At very soft raw water poor in CO_2 , this process can last for several weeks. This passing condition can be compensated for by supply of filtering material in partial shares (e.g. $\frac{1}{3}$ at a time:) or a respective overload at the beginning of operation.

(Note: For $K_s 4,3 + 2 \times K_b 8,2 < 0,5 \text{ mol/m}^3$ is $\text{pH} > 9$)

Filter should be flushed once a day in the first week of operation to allow for relaxation of filtering material until initial state eases. At later re-filling of filtering material, please, proceed accordingly.

4. Load of filtering plant

The pH value required will adjust automatically, when planned load, timely re-fillings and correct backwashing of filters in regular intervals are being observed. At overload of the filtering plant, target of conditioning will fall short. Short-time: underloads of maximum 30 % of rated capacity are admissible.

Akdolit® CM (Magno Dol) Operating instructions

5. Backwashing of filtering plant

Filters filled with Akdolit® CM are to be washed at least once a week after insertion of the filtering material. If raw water is more contaminated, washing is to be carried out more often. Companies supplying the plants will provide comprehensive operating manuals on washing procedure to follow. Instructions on washing given in the following shall serve for orientation.

5.1 Backwashing

With air and water (combined)

1. Air scour ca. 60 m/h
 - time: ca. 5 min
2. combined air/water backwash
 - with Air ca. 60 m/h
 - mit Wasser ca. 8 – 12 m/h
 - time: ca. 10 min
3. Water backwash ca. 20 – 25 m/h
 - time: until clear water drain
4. Pre-run

5.2 Freeboard height

At washing as to 5.1 ca. 300 – 500 mm

5.3 Slop water and pre-run

Slop water and pre-run with pH values of > 8,5 must not be conducted to water with fishes, since such water could cause death of fish. High pH values can be expected to be the case at filters filled with Akdolit® CM during starting-up period, after filling and refilling as well as at conditioning of very soft raw water, poor in CO₂. (see 3.)

6. Re-filling

Akdolit® CM is subject to consumption depending on amount of carbonic acid set. Sufficiently good result of conditioning is given, when filling level is between 90 – 100 % of layer height required. Re-filling is necessary at the latest, when 10 % of basic filling has been consumed (layer height Akdolit® CM). At shorter intervals of re-filling, the more equal the yield of neutralization will be. Plant has to be flushed after each re-filling.

7. Storage of Akdolit® CM

At storage of Akdolit® CM, care has to be taken that material will not be exposed to moisture. In order to exclude contamination of material, damage of packages of material packed in bags must be prevented by all means. Re-fillings should be done exclusively out of original containers.

8. Putting out of operation and reoperation

8.1 Putting out of operation

Before putting out of operation, the filter is being washed intensively. Filter can stay filled with water at short-time: standstills (3 - 4 weeks). Water will be drained off after washing before longer periods of standstill with open dirty water drain via bottom drain. After water having drained off, the filtering material will be dried for 15 minutes with rinsing air. In order to avoid formation of condensation water, the upper manhole should remain open until re-operation.

Akdolit® CM (Magno Dol) Operating instructions

8.2 Re-operation

Filtering plant has to be washed intensively several times before re-operation. Seat density of filter material has to be checked during water washing at opened manhole.

If re-filling should be necessary, it should be carried out before closing of the manhole. Wash again after re-filling. Then start up operation of the plant immediately.

9. Individual advice

Because of particularities in each case of application to be considered, advice and description of characteristics can be given only individually corresponding to the particular case. Information, notes and advice, therefore, contained in this work sheet are not legally binding. We shall be responsible only, if and as far as these are either confirmed by us on request in writing in the particular case or characteristics have been guaranteed in writing. Individual proposal will be made on request.

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Messer Tatragas, spol. s r.o.

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927 03 Šaľa, Slovakia

has been assessed and complies with the requirements of

Food Safety System Certification (FSSC) 22000

(Version 4.1)

Certification scheme for food safety management systems consisting of the following elements:
ISO 22000:2005, ISO/TS22002-1:2009 and additional FSSC 22000 requirement (version 4.1).

This certificate is applicable for:

**Production, storage and distribution of industrial gases, oxygen, nitrogen,
argon, carbon dioxide and gases mixtures used in the food industry.**

Exclusions from Scope: Marketing, Sales.

Application technologies, Laboratory - analytical equipment.

Food Category: K - Production of (Bio) Chemicals



This certificate is valid from 15 February 2019 until 9 April 2020
and remains valid subject to satisfactory surveillance audits.

Date of Certification decision 15 February 2019

Re-certification audit due 60 days prior to expiry date

Issue 1. Certified since April 2017

The audit leading to this certificate commenced on 24 November 2018

Previous issue certificate validity date was until 9 April 2020

Authorised by

Authorised Accredited Office Manager

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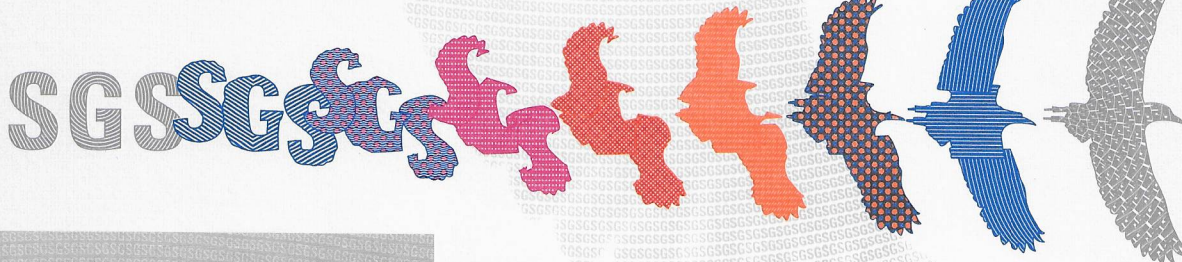
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Page 1 of 1

Validity of this certificate can be verified in the FSSC 22000 database of certified organizations available on www.fssc22000.com.



0005



označenie

CAS číslo 124-38-9

označenie podľa ADR UN 1013, oxid uhličitý, 2.2
trieda 2, 2A

označenie nádoby

rameno:
sivá, telo olivovožlté

dôležité vlastnosti

Bezfarebný skvapalnený plyn, pôsobiaci dusivo s mierne kyslým zápachom resp. chuťou, ťažší ako vzduch.

bezpečnostné symboly



stlačený plyn

fyzikálne vlastnosti

mólová hmotnosť: 44,0098 kg/kmol
 hustota plynu pri 0°C a 1,013 1,9767 kg/m³
 baroch:
 pomer hustoty k hustote vzduchu: 1,5289
 tlak pár pri 20°C: 57,258 bar

Ďalšie informácie sú uvedené na KBU číslo *-CO2-018A

ventily / armatúry

prípoj na ventil

G 3/4"

odporúčané armatúry

Constant 2000, Spectrolab FM 51 / FM 52exact
Spectrocem FE 51 / FE 52exact

špecifikácie / forma dodávok

špecifikácie / forma dodávok		Gourmet C	
Zloženie			
CO2	>=	99	Vol.-%
Nečistoty			
CO	<=	10	ppmv
olej	<=	5	mg/kg
Nádoba / obsah			
F 7		5	kg
F 8		6	kg
F 14		10	kg
F 26		20	kg
F 40		30	kg
Zv 12*F50		450	kg
MegaPack6		675	kg

upozornenia

Oxid uhličitý je v EU schválený ako potravinársky plyn.
 Použitie fliaš plynu Gourmet C je povolené výhradne v potravinárstve !
 Každá nádoba je označená špeciálnym číslom.
 Trvanlivosť je 3 roky od dátumu plnenia.
 K dispozícii sú nádoby so stupačkou aj bez stupačky.
 Smernica 231/2012 EU-Komisie od 9. marca 2012

Plyny určené pre potravinársky priemysel sú technické plyny najvyššej kvality, ktoré spĺňajú náročné požiadavky Európskej únie na kvalitu a zaručujú bezpečnosť potravín.

Messer Tatragas si uvedomuje zodpovednosť voči zákazníkom, vo výrobnom procese identifikuje a kontroluje riziká, zabráňuje možnému nebezpečenstvu ohrozenia, dbá na zdravotnú neškodnosť vyrábaných plynov a produktov pre použitie v potravinárstve. Dodržiavame a budeme dodržiavať zásady správnej výrobných praxe a požiadavky na potravinovú bezpečnosť našich produktov

Plyny pre potravinárstvo sú považované v zmysle platných právnych predpisov SR za prídavné (aditívne) látky, je povinnosťou ich aj takto označovať a dbať na zásady Správnej výrobných praxe (SVP). Splňajú náročné požiadavky Európskej únie na kvalitu a zaručujú bezpečnosť potravín týkajúce sa označovania, kritériá čistoty a hygienické požiadavky výroby a distribúcie.

Food gases specification							
	O ₂	N ₂	Ar	CO ₂	N ₂ O	He	H ₂
Gourmet	O	N	A	C	L	He	H
E number	E 948	E 941	E 938	E 290	E 942	E 939	E 949
Purity	> 99 %	> 99 %	> 99 %	> 99 %	> 99 %	> 99 %	> 99,9 %
Moisture	≤ 0,05 %	≤ 0,05 %	≤ 0,05 %		≤ 0,05 %	≤ 0,05 %	≤ 50 ppm
CnHm	≤ 100 ppm	≤ 100 ppm	≤ 100 ppm			≤ 100 ppm	
O ₂		≤ 1 %					≤ 10 ppm
N ₂							≤ 750 ppm
CO		≤ 10 ppm		≤ 10 ppm	≤ 30 ppm		
NO+NO ₂		≤ 10 ppm			≤ 10 ppm		
Oil				≤ 0,1 mg/l			

Minimálne špecifikácie pre potravinárske plyny sú uvedené podľa právnych predpisov Európskej únie (EÚ), JECFA a Európskeho liekopisu; Appendix 1, DOC 126/11/E EIGA (EUROPEAN INDUSTRIAL GASES ASSOCIATION).

Exxx - E - číslo produktu európskych nariadení potravinárskych prídavných látok (European Food Additive Regulations).

Sortiment produktov a kódov: Druh plynov pevne stanovený, uvedený v platnom cenníku vrátane kódov materiálových čísel; produkty sa objednávajú a dodávajú na základe uzatvorenej zmluvy.

Označovanie produktov: Produkty sú opatrené nálepkou, šaržované a výsledovateľné na miesto dodávky podľa objednávky. Plyny pre potravinárske aplikácie nespádajú pod povinnosť registrácie (REACH).

Farebné značenie v zmysle STN EN 1089-3. Pre lepšie farebné odlišenie od technických plynov toho istého zloženia je spodná časť fľaše natretá jednotnou farbou pre všetky potravinárske plyny. Skladové a prepravné zásobníky a tlakové fľaše sú určené len pre jeden druh plynu s jednoznačne definovanou kvalitou, so značením v zmysle požiadaviek súčasných zákonných predpisov.

Prehlásenie:

Výroba a distribúcia plynov spoločnosti Messer Tatragas, spol. s r.o., zodpovedá požiadavkám kvality pre technické plyny v potravinárskych aplikáciách, ich bezpečnému používaniu v potravinárskom priemysle v zmysle smernice EU 178/2002, EU 1333/2008, EU 852/2004, Potravinového kódexu SR a FSSC 22000 Food Safety Management System Certification.

Používané sú materiály a predmety sú určené na styk s potravinami. Všetky tlakové nádoby sú v súlade s požiadavkami európskych právnych predpisov týkajúcich sa použitiu plynov pre potravinárske aplikácie. Opravy a údržba (vrátane čistenia) tlakových nádob neovplyvňuje nepriaznivo kvalitu primárneho obalového materiálu. Voda použitá na hydraulické tlakové skúšky má kvalitu pitnej vody, operácie opravy a údržby nepredstavujú žiadne nebezpečenstvo pre kvalitu ďalších naplnených plynov.

Výrobky neobsahujú alergény, pri výrobe výrobkov nepoužívame geneticky modifikované organizmy (GMO) a / alebo deriváty GMO.

Výrobky spĺňajú špecifikáciu výrobcu a požiadavky na špecifikácie prídavných látok v potravinách v zmysle nariadenia Komisie (EÚ) č. 231/2012.

Vybrané uvedené produkty sú vyrábané vrátane balenia, kontroly kvality a hygieny, v plnej zhode s požiadavkami zásad HACCP, SVP a platných STN.

Ing. Michal Paľa
Konateľ

Mag. Michael Holy
Konateľ

Ing. Jana Némethová
Manažér FSSC, HACCP a SVP

MESSER

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Messer Tatragas spol. s r.o.
Chalupkova 9, 819 44 Bratislava
IČO: 00685852 IČ DPH: SK2020293220

Názov produktu	Gourmet C
Výrobca/Distribútor	Messer Tatragas spol. s r.o. Chalúpkova 9, 819 44 Bratislava Slovenská republika, Tel: +4212 50254 111, Fax: +4212 50254 112
Forma dodávky	Fľašové produkty, Kvapalné produkty Nie všetky veľkosti balenia musia byť uvedené na trh.
Určené použitie	Špeciálne / E290
Upozornenie	Pri manipulácii s fľašami je potrebné rešpektovať upozornenia uvedené v karte bezpečnostných údajov.
Odkaz na predpisy, normy	MTa normy, Messer Sales Tools, Zhoda so záväznými technickými normami- aktuálne vydanie
Ceny	V zmysle aktuálneho platného cenníka Messer Tatragas.
Objednávky produktu	☎ Tel.:+421850111221
	e-mail:callcentrum.sk@messergroup.com

Požiadavky na kvalitatívne a kvantitatívne zloženie	
Špecifikácia	Požiadavka
Zloženie:	
Obsah CO ₂	> 99,0 % V/V
Iné zložky:	
Obsah CO	< 10,0 ppm V/V
Obsah oleja	< 0,1 mg/m ³

Zabezpečenie kvality	
Vystavovanie dokladov	Požiadavke na vystavovanie dokladov ku konkrétnej dodávke predmetného produktu pre konkrétneho zákazníka vieme vyhovieť, avšak táto služba je v zmysle interného predpisu TOS Vydávanie dokladov a certifikátov spoplatnená.
Objednávací kód 50015	Vyžiadanie vyhlásenia o zhode treba objednať vopred, pod kódom 50015, v cene podľa platného cenníka.
Doklady	Analytický certifikáty kvality, Vyhlásenie o zhode

V Šali, 17.7.2019