

**BioplusLNG GmbH
Open Grid Europe GmbH
Betriebsstelle Röthenbachtal**

**Antrag
auf
Genehmigung
der
Indirekteinleitung
von
Abwasser
nach Anhang 31
Abwasserverordnung**

Revision 1

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Antrag auf Genehmigung der Indirekteinleitung von Abwasser aus der Wasseraufbereitung und der Dampferzeugung nach Anhang 31 der Abwasserverordnung (AbwV) von der Betriebsstelle Röthenbachtal

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Einleitung

Die Firma bioplusLNG GmbH plant im Industriegebiet Röthenbachtal in der Stadt Röthenbach an der Pegnitz, Röthenbachtal 1, eine Anlage zur Verflüssigung von Biomethan zu BIO-LNG (LNG = Liquefied Natural Gas) zu errichten und zu betreiben. Das Biomethan wird zuvor im Bereich von Biogaserzeugungsanlagen in das überörtliche Ferngasnetz eingespeist und über den Anschluss der Verflüssigungsanlage dem Ferngasnetz entnommen und bilanziell zu verflüssigtem Biomethan zur Verwendung im Transportsektor aufbereitet.

Die Errichtung der geplanten Anlage soll auf dem Standort der ehemaligen Ruhrgas Verdichterstation Renzenhof erfolgen. Die Verdichterstation wurde Mitte der 1970er Jahre von der Ruhrgas AG errichtet. Auf der Verdichterstation wird seit der ursprünglichen Errichtung ein Trennsystem zur Erfassung des Niederschlagswassers und des Schmutzwassers vorgehalten.

Das Schmutzwasser wurde in den ersten Betriebsjahren zunächst mittels einer OMS-Kleinkläranlage aufbereitet und anschließend über einen Kanal gemeinsam mit dem Niederschlagswasser in den ca. 300 m entfernten Röthenbach eingeleitet.

Mit Bescheid vom 8. Mai 1998 wurde von der Stadt Röthenbach a. d. Pegnitz die Genehmigung erteilt, für das Schmutzwasser einen Anschluss in die öffentliche Kanalisation der Stadt Röthenbach mittels einer Druckleitung herzustellen und zu nutzen.

Die Ferngas-Transportverdichteranlage der Open Grid Europe GmbH (OGE), Kallenbergstr. 5, 45141 Essen, wurde im Jahr 2015 stillgelegt und zurückgebaut.

Die neu geplante Anlage zur Herstellung von BIO-LNG soll im Zentralbereich der durch den Rückbau entstandenen Brachfläche errichtet werden und wird eine Grundfläche von ca. 6.000 m² beanspruchen.

Zu den Komponenten der geplanten Anlage gehören eine Wasseraufbereitungsanlage und eine Dampferzeugung für deren Abwasser aufgrund der anfallenden Mengen eine Genehmigung zur Indirekteinleitung gemäß Anhang 31 Abwasserverordnung (AbwV) erforderlich ist.

Das Niederschlagswasser auf dem gesamten Betriebsgelände wird getrennt gesammelt und über ein eigenes Kanalisationsnetz einer Versickerungsanlage auf dem Betriebsgelände zugeleitet. Die Erweiterung der Niederschlagswasserkanalisation im Zuge der Errichtung geplanten Anlage inkl. des Neubaus der Versickerungsanlage wird in einem separaten Antrag auf eine wasserrechtliche Erlaubnis gemäß § 8 und § 10 WHG beim Landratsamt Nürnberger Land, Wasserwirtschaftsamt Nürnberg, beantragt.

Lage der Betriebsstelle Röthenbachtal

Als Standort dient die Fläche der ehemaligen Erdgas-Verdichterstation Renzenhof im Industriegebiet Röthenbachtal in Röthenbach an der Pegnitz, Röthenbachtal 1. Es handelt sich um die

Flurstücke 447/5 und 447/6

Gemarkung Röthenbach an der Pegnitz

Die genaue Lage des Betriebsgeländes der Betriebsstelle kann den „Übersichtskarten“ im Kapitel 2 der BlmschG-Antragsunterlagen entnommen werden.

Beschreibung der geplanten BioLNG-Anlage

Die Biomethan-Verflüssigungsanlage (nachfolgend BioLNG-Anlage) besteht aus folgenden Hauptkomponenten:

- CO₂-Abtrennung durch Aminwäsche
- Aminregeneration
- Gastrocknung
- Gasverflüssigung (Cold Box)
- Stickstoff-Lagertanks
- Stickstoff-Kreisprozess
- Wasserkühler
- Luft-Stickstoffkühler
- BIOLNG-Lagertanks
- BIOLNG-Verladeeinheit (LKW)
- Dampferzeuger
- Druckluftherzeugung
- Wasserentsalzungsanlage
- Notstromaggregat
- Thermische Nachverbrennung
- Bodenfackel
- Ausbläser

Das als **Anlage 1** beigefügte Schema gibt eine grobe Übersicht über die Anordnung der Komponenten der geplanten BioLNG-Anlage.

Das Gas gelangt durch einen Anschluss an eine vor Ort befindliche Ferngasleitung in die BIOLNG-Anlage. Durch einen Kälteprozess mit Stickstoff als Kältemittel erfolgt der Verflüssigungsprozess.

Der Prozess erfordert eine vorgeschaltete Aufbereitung des Speisegases, um die gefrierenden Komponenten (CO₂ und Wasser) bei kryogenen Temperaturen zu entfernen.

Zuerst erfolgt die CO₂-Abtrennung durch einen Absorptionsprozess, in dem eine Aminlösung als selektives Absorptionsmittel eingesetzt wird (Aminwäsche). Die Aminwäsche besteht aus zwei Türmen. Ein Turm dient der Absorption des CO₂ und im anderen Turm erfolgt die Regeneration der beladenen Aminlösung. Das Gas gelangt zunächst in den Absorptionsturm, in dem es im Gegenstrom mit der Aminlösung in Kontakt gebracht wird und das im Gas enthaltene CO₂ in der Aminlösung absorbiert wird. Das beladene Absorptionsmittel wird am Boden des Absorptionsturms entnommen und dem Regenerationsturm zugeführt.

Hier wird durch Erhitzen der Aminlösung das CO₂ aus der Lösung ausgetrieben. Das regenerierte Absorptionsmittel gelangt wieder in den Absorptionsprozess. Das abgetrennte CO₂ enthält noch geringe Anteile von organischen Kohlenwasserstoffen und wird einer thermischen Nachverbrennung zugeführt.

Nach der Aminwäsche erreicht das Gas die Trocknungsanlage, in der die Wasserbestandteile im Gasstrom abgetrennt werden. Dies erfolgt durch Adsorption an aktiviertem Aluminiumoxid. Die Trocknungsanlage besteht aus drei Festbettreaktoren, die wechselnd zur Trocknung oder Regeneration im Prozess genutzt werden.

Nach der Trocknung liegt das Gas in einer Zusammensetzung vor, dass es dem Verflüssigungsprozess zugeführt werden kann. Hierbei kommt ein Kälteprozess mit mehrstufiger Verdichtung und Entspannung von Stickstoff als Kältemittel zum Einsatz. Der zum Einsatz kommende Stickstoff wird in zwei Lagertanks bereitgestellt. Der eigentliche Abkühlvorgang erfolgt in einer sog. Cold-Box, in dem der Wärmeaustausch zwischen dem Gas und Stickstoff stattfindet.

Das nun verflüssigte Gas wird abschließend in zwei Kryo-Lagertanks gefördert und dort für den Abtransport durch LKW mit Spezialaufliegern zu den diversen LNG-Tankstellen und Abnehmern bereitgestellt.

Die Anlage wird auf eine Produktion von 150 t/d BIOLNG im 3-Schicht-Betrieb ausgelegt.

Schmutzwasser Betriebsstelle Röthenbachtal

Das Schmutzwasser auf der Verdichterstation Renzenhof wurde bereits seit der Errichtung in den 1970er Jahren getrennt erfasst, mittels einer OMS-Kleinkläranlage behandelt und abgeleitet.

Mit Bescheid vom 8. Mai 1998 wurde von der Stadt Röthenbach a. d. Pegnitz der Ruhrgas AG die Genehmigung erteilt, für das Schmutzwasser einen Anschluss in die öffentliche Kanalisation der Stadt Röthenbach mittels einer Druckleitung herzustellen und zu nutzen. Die OMS-Kleinkläranlage wurde gleichzeitig stillgelegt.

Die häuslichen Abwässer aus dem Verwaltungsgebäude und die Abwässer aus den Versorgungsgebäuden der Betriebsstelle Röthenbachtal sowie das Schmutzwasser vom Koaleszenzabscheider NG 6 mit Ölschlammfang und Probenahmeschacht im Ablauf vom Kfz-Waschplatz in der Garage werden gemeinsam über Freispiegelleitungen zur Pumpstation im südlichen Grundstücksbereich geleitet (**Anlage 2**).

Von der Pumpstation wird das Abwasser mittels einer Druckleitung PE-HD DN 65/PN 10 zur öffentlichen Kanalisation der Stadt Röthenbach a. d. Pegnitz gefördert (**Anlage 3**).

Das bei Produktion von BioLNG anfallende Schmutzwasser aus der Wasseraufbereitung und aus dem Dampfkessel soll durch einen Anschluss an die vorhandene Druckleitung mit in die öffentliche Kanalisation abgeleitet werden.

Für diese geplante Einleitung wird parallel zum vorliegenden Verfahren eine satzungsrechtliche Erlaubnis auf Basis des obigen Bescheides von 1998 beantragt.

Abwasser aus der Wasseraufbereitung

Die Wasseraufbereitung für die Dampfkesselanlage der geplanten BioLNG-Anlage ist in der beigefügten **Anlage 4** „Fließschema Wasseraufbereitung“ dargestellt.

Zur Wasseraufbereitung werden dem Rohwasser (Trinkwasser) das Anti-Scalingmittel DISPERDENT 300 RO und das Decarbonisierungsmittel FORMULA 220 NA des Herstellers FACCI Service, Italy zu jeweils ca. 1 Liter/Tag zugeführt. Die Sicherheitsdatenblätter der zugesetzten Mittel sind als Anlage 5 dem vorliegenden Antrag beigefügt.

Die eigentliche Aufbereitung des Wassers zum Kesselspeisewasser erfolgt anschließend durch die Verwendung von Umkehrosmodulen.

DISPERDENT 300 RO besteht aus einer wässrigen 3 – 3,5 %igen Natriumdisulfit-Lösung ($\text{Na}_2\text{S}_2\text{O}_5$). Dieser Zusatzstoff verhindert die Kristallisation und Ablagerung von Mineralien auf der Membranoberfläche der Umkehrosmodulen, die zum Blockieren der Membranporen führen können. Insbesondere die Kristallbildung und

das Kristallwachstum von Kesselstein (Calcium- und Magnesiumcarbonat) wird so beeinflusst, dass die Partikel in Suspension bleiben.

FORMULA 220 NA besteht aus einer wässrigen 12 – 13,5 % NaOH-Lösung. Dieser Zusatzstoff bindet das im Wasser enthaltene CO₂ zu Natriumcarbonatsalzen, die effektiv in der Umkehrosmose abgetrennt werden können.

Das Abwasser (Retentat) der Umkehrosmoseanlage fällt kontinuierlich mit einem Volumenstrom von ca. 250 l/h bzw. ca. 6 m³/d an und besitzt eine Leitfähigkeit von bis zu 1.500 µS/cm.

Abwasser aus der Dampferzeugung

Die Dampferzeugung der geplanten BIOLNG-Anlage ist in der beigefügten **Anlage 6** „Fließschema Dampferzeugung“ dargestellt.

Mit zwei Dosierstationen werden dem entsalzten Wasser (Permeat der Umkehrosmoseanlage) im Einspeisebehälter das Korrosionsschutzmittel CORTROL OS 5300 und das Kesselsteingegenmittel SOLUS AP 27 des Herstellers SUEZ, Italy zu jeweils ca. 1 Liter/Tag zugesetzt. Die Sicherheitsdatenblätter der zugesetzten Additive sind als **Anlage 7** dem vorliegenden Antrag beigefügt.

CORTROL OS 5300 besteht aus einer wässrigen Lösung mit 20 – 30 % Diethylhydroxylamin (C₄H₁₁NO), 1 – 3 % Hydrochinon (C₆H₆O₂) und ≤ 0,3 % Diethylamin (C₄H₁₁N). Dieses Additiv wirkt als Adsorptionsinhibitor und bildet auf Grund von Adhäsionskräften einen Schutzfilm auf der Stahloberfläche des Kessels. Dieser Schutzfilm verzögert den Korrosionsbeginn und die Korrosionsgeschwindigkeit, indem der Zutritt von Sauerstoff reduziert wird.

SOLUS AP 27 besteht aus einer wässrigen 1 – 3 %igen NaOH-Lösung. Dieser Zusatz wirkt als Alkalisierungsmittel korrosionsmindernd, reagiert mit dem hochkorrosiven MgCl₂ zu NaCl und bindet CO₂ zu Natriumcarbonat.

Das Abwasser aus der Kesselanlage setzt sich aus dem Abgaskondensat und dem Abschlammwasser zusammen. Da sich im Verlauf der kontinuierlichen Dampfherstellung die sehr geringe Menge an Salzen im Kesselwasser im Zeitablauf dennoch aufkonzentriert, wird der Kessel bei Bedarf abgeschlammmt, um einen Schaden an der Anlage zu verhindern.

Der Abwasservolumenstrom beträgt ca. 105 l/h bzw. ca. 2,5 m³/d und weist eine Leitfähigkeit von bis zu 2000 µS/cm auf. Die Abwassertemperatur beträgt ca. 60 °C.

Beurteilung der Abwasserqualität im Hinblick auf die Anforderungen des Anhangs 31 der Abwasserverordnung (AbwV)

Als Beurteilungshilfe dient das Merkblatt Nr. 4.5/31, Stand 01.11.2011, des Bayerischen Landesamtes für Umwelt.

Im Folgenden werden die relevanten Abschnitte des Merkblattes aufgeführt und den Gegebenheiten der Wasseraufbereitung und Dampferzeugung der BIOLNG-Anlage gegenübergestellt. Zitate aus dem Merkblatt werden *kursiv* und **blau** dargestellt.

1 Allgemeines

Die letzte Anpassung des Anhangs 31 der Abwasserverordnung erfolgte mit der achten Verordnung zur Änderung der Abwasserverordnung vom 22.08.2018. Das Merkblatt Nr. 4.5/31 vom 01.11.2011 ist weiterhin gültig.

2 Anwendungsbereich

Das zu beurteilende Abwasser stammt aus der Wasseraufbereitung und der Dampferzeugung und fällt somit in den Anwendungsbereich des Anhangs 31 der Abwasserverordnung.

2.1 Bagatellregelung

Es entstehen ca. 60 m³ Abwasser pro Woche. Die Bagatellgrenze des Anhangs 31 von 10 m³/Woche wird also überschritten. Der Anhang 31 ist anzuwenden.

2.2 Wasseraufbereitung

Der Anhang gilt für das Abwasser aus der Aufbereitung von Rohwasser (Grund- und Oberflächenwasser) mit dem Ziel, Wasser bestimmter Qualität zu erhalten.

Als Rohwasser für die Speisewasseraufbereitung der Dampfkesselanlage dient Trinkwasser des örtlichen Wasserversorgers. Im Gegensatz zu Grund- und Oberflächenwasser handelt es sich hier sicher um ein hochdefiniertes Rohwasser ohne schädliche Verunreinigungen.

Das gewählte Wasseraufbereitungsverfahren ist im Merkblatt genannt unter:

Umkehrosmose Gewinnung von hochreinem Wasser durch Membranfiltration; Aufkonzentrierung der Inhaltsstoffe im Rententat.

2.3 Kühlsysteme

Nicht zutreffend

2.4 Dampferzeugung

Als zutreffende sonstige Anfallstelle ist im Merkblatt genannt:

Abschlammung (diskontinuierlich) von Dampfkesseln

3 Allgemeine Anforderungen (Teil B)

3.1 Einsatzstoffe

Die in der Tabelle des Merkblattes genannten Einsatzstoffe werden nicht verwendet. Es werden die zuvor genannten umweltfreundlicheren Alternativstoffe $\text{Na}_2\text{S}_2\text{O}_5$ -Lösung und NaOH-Lösung eingesetzt.

3.2 Vorbelastungsregelung

Durch die Verwendung von Trinkwasser als Rohwasser ist eine Betrachtung der Vorbelastung nicht erforderlich.

4 Anforderungen an das Abwasser für die Einleitungsstelle (Teil C)

Da es sich vorliegend um einen Antrag auf Indirekteinleitung handelt, kommen die Anforderungen des Kapitels 4 des Merkblattes nicht zum Tragen.

5 Anforderungen an das Abwasser vor Vermischung (Teil D)

5.1 Wasseraufbereitung

Arsen:

Anforderung: 0,1 mg/l (qual. Stichprobe oder 2-h-Mischprobe)

Die im Merkblatt genannten potenziellen Arsenquellen (Filterspülwasser und Anlagen zur Enteisung/Entmanganung von Rohwasser) liegen hier nicht vor.

→ Es ist kein Arsen im Abwasser zu erwarten!

AOX:

Anforderung: 1 mg/l (Stichprobe) im Regenerationswasser von Ionenaustauschern 0,2 mg/l (Stichprobe) im übrigen Abwasser aus der Wasseraufbereitung

Die im Merkblatt genannten potenziellen AOX-Quellen (vorbelastetes Rohwasser, Salzsäure als Regenerationslösung, Einsatz von halogenhaltigen Bioziden) liegen hier nicht vor.

→ **Es ist kein AOX im Abwasser zu erwarten!**

Es werden keine Biozide eingesetzt.

→ **Es sind keine Biozide im Abwasser zu erwarten!**

5.2 Kühlsysteme mit Abflutung von sonstigen Kühlkreisläufen

Nicht zutreffend.

5.3 Dampferzeugung

5.3.1 Allgemeines

Die Beschreibung der Abwasseranfallstellen und der zu erwartenden Abwasserzusammensetzung wird hiermit vorgelegt.

5.3.2 Anforderungen (jeweils qualitative Stichprobe oder 2-h-Mischprobe)

Zink:	1	mg/l
Chrom:	0,5	mg/l
Cadmium:	0,05	mg/l
Kupfer:	0,5	mg/l
Blei:	0,1	mg/l
Nickel:	0,5	mg/l
Vanadium	4	mg/l

Die aufgeführten Schwermetalle können aus Komponenten des Dampfsystems bei verstärktem Abrieb, z. B. wegen Korrosion oder durch Beizung, ausgetragen werden (z. B. Zink und Kupfer bei Messingwärmetauschern). Mit Ausnahme von Kupfer können die aufgeführten Metalle aus der Kohlebefeuerung stammen, Nickel und Vanadium ist im Schweröl enthalten. Zink kann über Konditionierungsmittel eingetragen werden.

Durch die durchgeführten Korrosionsschutzmaßnahmen ist der Abrieb von Schwermetallen aus dem Dampfsystem ausgeschlossen. Der zum Einsatz kommende Dampfkessel ist erdgasbefeuert. Der Eintrag von Metallen durch Kohle- oder Schwerölbefuerung ist somit ebenfalls ausgeschlossen. Zinkhaltiges Konditionierungsmittel wird nicht eingesetzt.

→ **Es sind keine Schwermetalle im Abwasser zu erwarten.**

Hydrazin: 2 mg/l (Stichprobe)

Es wird kein Hydrazin eingesetzt.

→ **Es ist kein Hydrazin im Abwasser zu erwarten.**

Freies Chlor: 0,2 mg/l (Stichprobe)

Biologische Beläge können sich in Bereichen des Dampfsystems mit niederen Temperaturen bilden, z. B. bei der Kondensataufbereitung. Hier kann der fallweise Einsatz von chlorhaltigen Bioziden erforderlich sein.

Es werden keine chlorhaltigen Biozide eingesetzt.

→ **Es ist kein freies Chlor im Abwasser zu erwarten.**

AOX: 0,5 mg/l (Stichprobe)

AOX ist im Wesentlichen dann zu erwarten, wenn Kondensataufbereitung an Ionentauschern betrieben und für deren Regeneration Salzsäure eingesetzt wird. In diesem Fall ist AOX-arme Salzsäure nach DIN EN 939 zu verwenden.

Es werden keine Ionenaustauscher eingesetzt und somit auch keine Salzsäure zur Regeneration.

→ **Es ist kein AOX im Abwasser zu erwarten.**

6 Anforderungen an das Abwasser für den Ort des Anfalls (Teil E)

6.1 Allgemeines

Mikrobizide Wirkstoffe werden nicht eingesetzt und deren Rückstände im Abwasser somit nicht zu erwarten.

6.2 Frischwasserkühlung von industriellen und gewerblichen Prozessen und von Kraftwerken im Ablauf

Nicht zutreffend.

6.3 Abflutwasser von Hauptkühlkreisläufen von Kraftwerken (Abflutwasser aus der Umlaufkühlung)

Nicht zutreffend.

6.4 Anforderungen an die Abflutung sonstiger Kühlkreisläufe

Nicht zutreffend.

7. Anforderungen für vorhandene Einleitungen (Teil E)

Es handelt sich um eine neue Einleitung.

Zusammenfassung

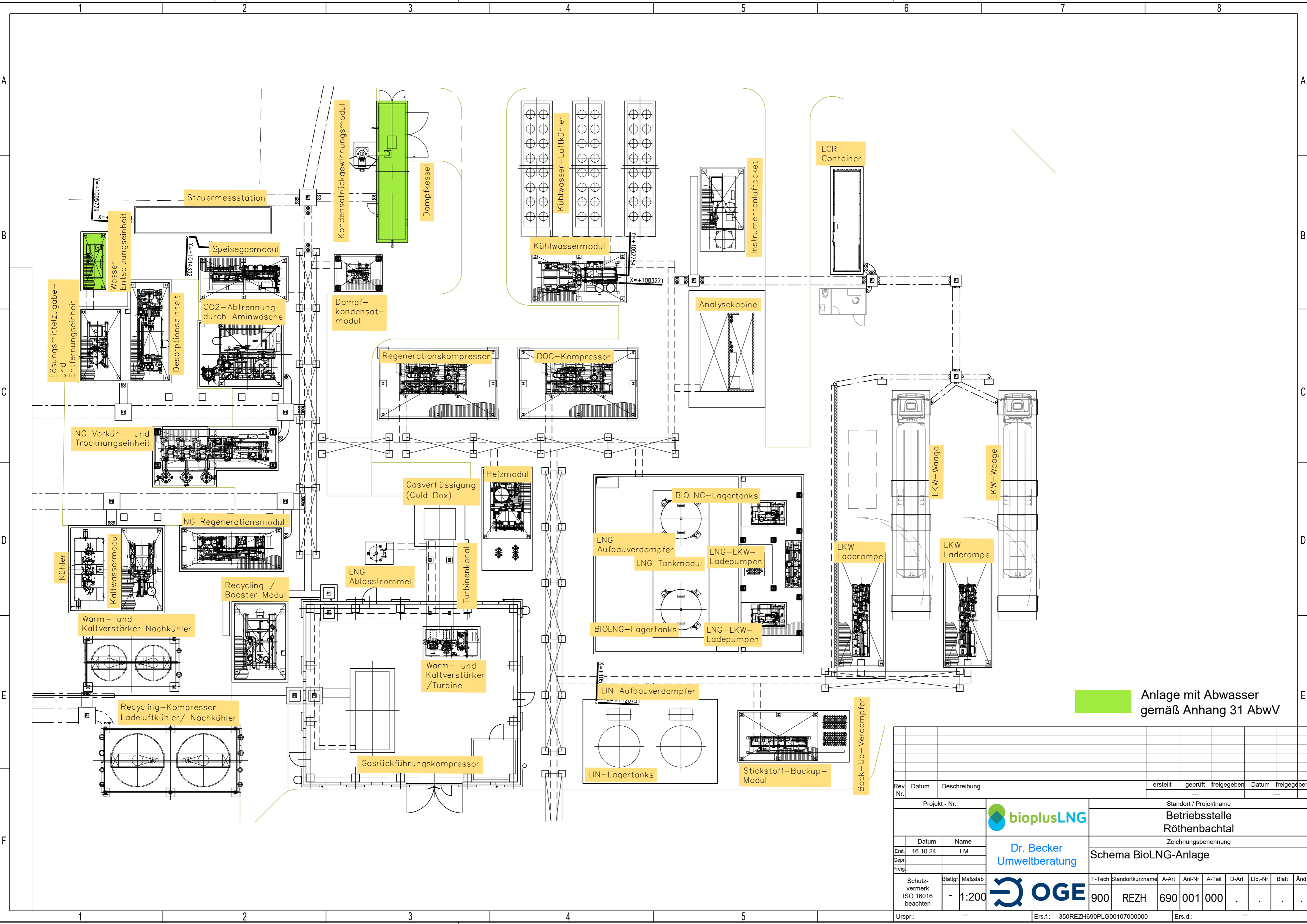
Aufgrund des gewählten Rohwassers, der Einsatzstoffe und der verwendeten Verfahrenstechnik sind keine gemäß Anhang 31 der Abwasserverordnung relevanten Inhaltsstoffe im Abwasser der Anlage zu erwarten. Es erfolgt lediglich eine Aufsatzung des Abwassers, die sich in einer erhöhten Leitfähigkeit niederschlägt. Eine weitere Vorbehandlung des Abwassers ist nicht erforderlich.

Die gemäß Anhang 31 AbwV relevanten Abwasserströme der geplanten BIOLNG-Anlage werden in einem neuen Abwassersystem zusammengefasst und mittels einer neuen Druckleitung zur vorhandenen Druckleitung des Standortes Röthenbachtal geleitet. Die Einbindung in die vorhandene Druckleitung PE-HD DN 65/PN 10 erfolgt in einem vorhandenen Schacht (**Anlage 8**).

Von hier aus werden die vereinten Abwasserströme der Betriebsstelle Röthenbachtal über die vorhandene Druckleitung in die öffentliche Kanalisation der Stadt Röthenbach geleitet.



Dr. K. Becker



Anlage mit Abwasser gemäß Anhang 31 AbwV

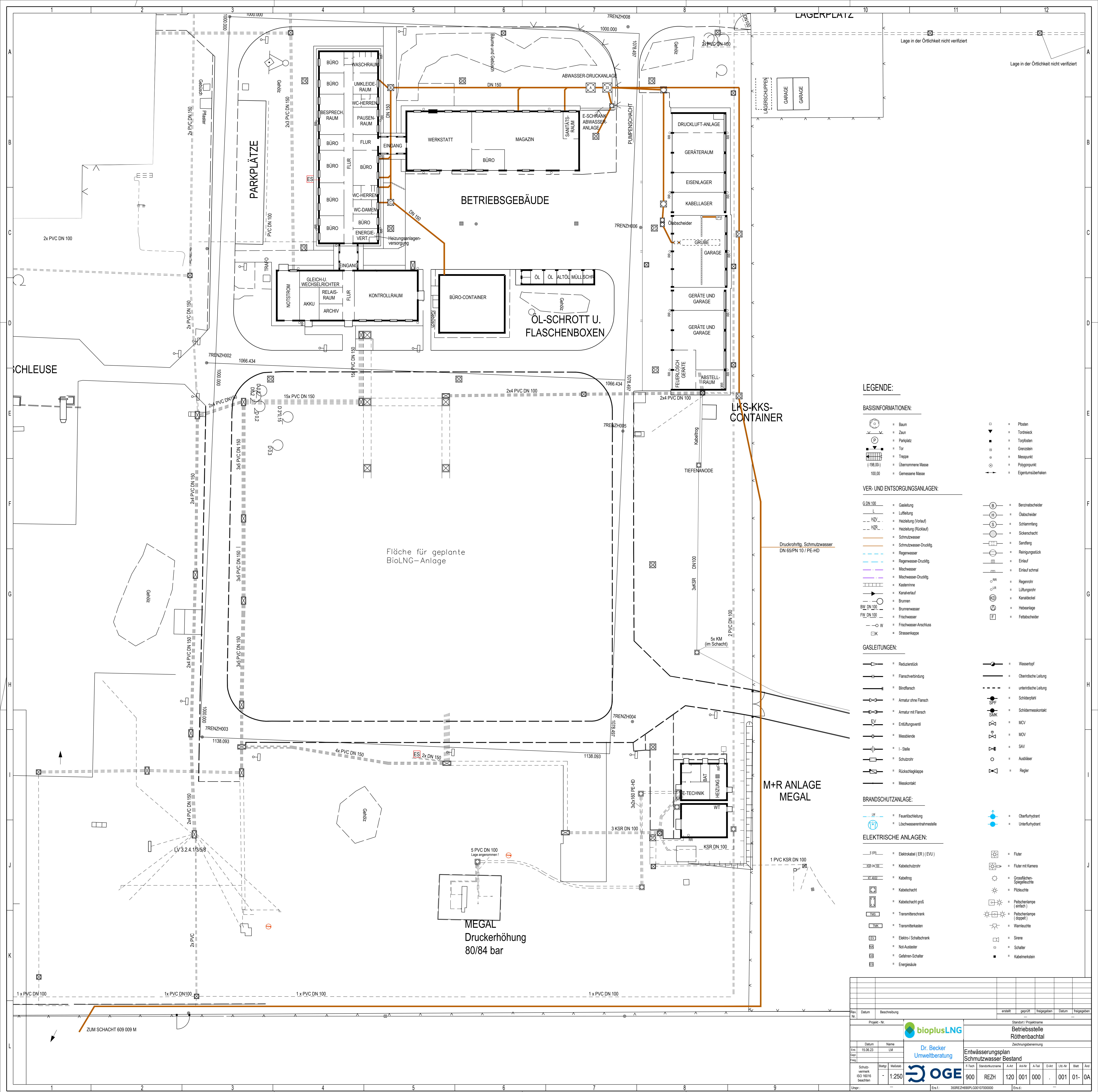
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Dr. Becker
Umweltberatung



Zeichnungsbenennung
Schema BioLNG-Anlage



LEGENDE:

BASISINFORMATIONEN:

- = Baum
- = Zaun
- = Parkplatz
- = Tor
- = Treppe
- = Übernommene Masse
- = Gemessene Masse
- = Pfosten
- = Tordleck
- = Torfotel
- = Grenzstein
- = Messpunkt
- = Polygonpunkt
- = Eigentumsüberhaken

VER- UND ENTSORGUNGSANLAGEN:

- = Gasleitung
- = Lüftung
- = Heideitung (Vorlauf)
- = Heideitung (Rücklauf)
- = Schmutzwasser
- = Schmutzwasser-Drucklgt.
- = Regenwasser
- = Regenwasser-Drucklgt.
- = Mischwasser
- = Mischwasser-Drucklgt.
- = Kanalleitung
- = Kanalverlauf
- = Brunnen
- = Brunnenwasser
- = Frischwasser
- = Frischwasser-Anschluss
- = Strassenkappe
- = Benzinabscheider
- = Ölabscheider
- = Schlammfang
- = Sickerschacht
- = Reinigungsstück
- = Einlauf
- = Einlauf schmal
- = Regenrohr
- = Lüftungrohr
- = Kanaldeckel
- = Hebeanlage
- = Fettsabscheider

GASLEITUNGEN:

- = Reduzierstück
- = Flanschverbindung
- = Blindflansch
- = Armatur ohne Flansch
- = Armatur mit Flansch
- = Entlüftungsventil
- = Messbleibe
- = I-Station
- = Schutzrohr
- = Rückschlagklappe
- = Messkontakt
- = Wassertopf
- = Oberirdische Leitung
- = Unterirdische Leitung
- = Schilderpfahl
- = Schildmesskontakt
- = MCV
- = MOV
- = SAV
- = Ausbleier
- = Regler

BRANDSCHUTZANLAGE:

- = Feuerföschung
- = Löscheserentnahmestelle
- = Oberflurhydrant
- = Unterflurhydrant

ELEKTRISCHE ANLAGEN:

- = Elektrokabel (ER) (EVU)
- = Kabelschutzrohr
- = Kabeltrög
- = Kabelschacht
- = Kabelschacht groß
- = Transmitterschrank
- = Transmitterkasten
- = Elektro-Schaltzschrank
- = Not-Ausaster
- = Gefahren-Schalter
- = Energiesäule
- = Fluter
- = Fluter mit Kamera
- = Grössflächen-Spiegellichte
- = Platteuchte
- = Peltschenlampe (einfach)
- = Peltschenlampe (doppelt)
- = Warmleuchte
- = Sirene
- = Schalter
- = Kabelmerkstein

Rev. Nr.	Datum	Beschreibung	stellt	geprüft	freigegeben	Datum	freigegeben			
Projekt - Nr.						Standort / Projektname				
Datum			15.05.23			Betriebsstelle				
Entwerfer			LM			Röthenbachtal				
Proj. Nr.			LM			Zeichnungsbenennung				
Schutzvermerk			ISO 14001 beachten			Entwässerungsplan				
Skala			1:250			Schmutzwasser Bestand				
Urspr.			-			F-Tech				
Ers.			-			Standortkurzname				
Ers.			-			A-Art				
Ers.			-			A-Teil				
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DISPERDENTE 300 RO

Safety Data Sheet

According to Annex II to REACH - Regulation 2020/878

SECTION 1. Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product name **DISPERDENTE 300 RO**
Chemical name and synonym **Derivatives of phosphorus and neutralized sodium sulfite in solution**

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

Intended use **Chemicals for RO-WATER**

1.3. Details of the supplier of the safety data sheet

Name **FACCI SERVICE SRL**
Full address **VIA GIORGIO PERLASCA 1**
District and Country **24057 MARTINENGO BG**
ITALY
Tel. +39 0363987998

e-mail address of the competent person responsible for the Safety Data Sheet **water.treatment@facci-service.it**
Supplier: **FACCI SERVICE SRL**

1.4. Emergency telephone number

For urgent inquiries refer to **Centro Antiveleni di Milano 02 66101029 (CAV Ospedale Niguarda Ca` Granda -Milano)**

SECTION 2. Hazards identification**2.1. Classification of the substance or mixture**

The product is classified as hazardous pursuant to the provisions set forth in (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2020/878.

Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

Serious eye damage, category 1 **H318** Causes serious eye damage.

DISPERDENTE 300 RO

2.2. Label elements

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:



Signal words: Danger

Hazard statements:

H318 Causes serious eye damage.
EUH031 Contact with acids liberates toxic gas.

Precautionary statements:

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P280 Wear eye protection / face protection.
P310 Immediately call a POISON CENTER / doctor / . . .

Contains: SODIUM BISULPHITE

2.3. Other hazards

On the basis of available data, the product does not contain any PBT or vPvB in percentage \geq than 0,1%.

The product does not contain substances with endocrine disrupting properties in concentration \geq 0.1%.

SECTION 3. Composition/information on ingredients

3.2. Mixtures

Contains: Derivates of phosphorus and polymers NOT DANGEROUS

Identification	x = Conc. %	Classification 1272/2008 (CLP)
SODIUM BISULPHITE		
CAS 7681-57-4	$3 \leq x < 3,5$	Acute Tox. 4 H302, Eye Dam. 1 H318, EUH031
EC 231-673-0		LD50 Oral: 1540 mg/kg
INDEX 016-063-00-2		
REACH Reg. 01-2119531326-45		

The full wording of hazard (H) phrases is given in section 16 of the sheet.

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SECTION 4. First aid measures

4.1. Description of first aid measures

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.

SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention immediately. Wash contaminated clothing before using it again.

INHALATION: Remove to open air. If the subject stops breathing, administer artificial respiration. Get medical advice/attention immediately.

INGESTION: Get medical advice/attention immediately. Do not induce vomiting. Do not administer anything not explicitly authorised by a doctor.

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

Specific information on symptoms and effects caused by the product are unknown.

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

Information not available

SECTION 5. Firefighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT

The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.

UNSUITABLE EXTINGUISHING EQUIPMENT

None in particular.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Do not breathe combustion products.

5.3. Advice for firefighters

GENERAL INFORMATION

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Block the leakage if there is no hazard.

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Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.

Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Ensure that there is an adequate earthing system for the equipment and personnel. Avoid contact with eyes and skin. Do not breathe powders, vapours or mists. Do not eat, drink or smoke during use. Wash hands after use. Avoid leakage of the product into the environment.

7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Store in a ventilated and dry place, far away from sources of ignition. Keep containers well sealed. Keep the product in clearly labelled containers. Avoid overheating. Avoid violent blows. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s)

Information not available

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Regulatory References:

FRA	France	Valeurs limites d'exposition professionnelle aux agents chimiques en France. ED 984 - INRS
GBR	United Kingdom	EH40/2005 Workplace exposure limits (Fourth Edition 2020)
	TLV-ACGIH	ACGIH 2020

SODIUM BISULPHITE

Threshold Limit Value

Type	Country	TWA/8h	STEL/15min	Remarks / Observations

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		ns			
		mg/m3	ppm	mg/m3	ppm
VLEP	FRA	5			
WEL	GBR	5			
TLV-ACGIH		5			

Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.

When choosing personal protective equipment, ask your chemical substance supplier for advice.

Personal protective equipment must be CE marked, showing that it complies with applicable standards.

Provide an emergency shower with face and eye wash station.

If the product may or must come into contact or react with acids, suitable technical and/or organisational measures should be taken to prevent the development of toxic and/or inflammable gases.

HAND PROTECTION

Protect hands with category III work gloves (see standard EN 374).

The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

SKIN PROTECTION

Wear category I professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

EYE PROTECTION

Wear airtight protective goggles (see standard EN 166).

RESPIRATORY PROTECTION

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, use a mask with a type B filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

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SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Value	Information
Appearance	liquid	
Colour	characteristic	
Odour	characteristic	
Melting point / freezing point	Not available	
Initial boiling point	98 °C	
Flammability	Not available	
Lower explosive limit	Not available	
Upper explosive limit	Not available	
Flash point	> 93 °C	
Auto-ignition temperature	Not available	
Decomposition temperature	Irrilevante ai fini della classificazione °C	
pH	Not available	
Kinematic viscosity	Not available	
Dynamic viscosity	Irrilevante ai fini della classificazione	
Solubility	complete	
Partition coefficient: n-octanol/water	Not available	
Vapour pressure	Not available	
Density and/or relative density	1 kg/l	
Relative vapour density	Not available	
Particle characteristics	Not applicable	

9.2. Other information

9.2.1. Information with regard to physical hazard classes
Information not available

9.2.2. Other safety characteristics

Information not available

Explosive properties not applicable

Oxidising properties not applicable

SECTION 10. Stability and reactivity

10.1. Reactivity

Information not available

10.2. Chemical stability

Information not available

10.3. Possibility of hazardous reactions

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Contact with strong acids causes the development of toxic gases.

10.4. Conditions to avoid

Information not available

10.5. Incompatible materials

Information not available

10.6. Hazardous decomposition products

Information not available

SECTION 11. Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.

It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008Metabolism, toxicokinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

Information not available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Information not available

Interactive effects

Information not available

ACUTE TOXICITY

ATE (Inhalation) of the mixture:

Not classified (no significant component)

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ATE (Oral) of the mixture: >2000 mg/kg
ATE (Dermal) of the mixture: Not classified (no significant component)

SODIUM BISULPHITE

LD50 (Oral): 1540 mg/kg Rat
LD50 (Dermal): > 2000 mg/kg Rat

SKIN CORROSION / IRRITATION

Does not meet the classification criteria for this hazard class

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye damage

RESPIRATORY OR SKIN SENSITISATION

Does not meet the classification criteria for this hazard class

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

STOT - REPEATED EXPOSURE

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Does not meet the classification criteria for this hazard class

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

11.2. Information on other hazards

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with human health effects under evaluation.

SECTION 12. Ecological information

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation.

12.1. Toxicity

Information not available

12.2. Persistence and degradability

SODIUM BISULPHITE
Solubility in water > 10000 mg/l
Degradability: information not available

12.3. Bioaccumulative potential

Information not available

12.4. Mobility in soil

Information not available

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage \geq than 0,1%.

12.6. Endocrine disrupting properties

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with environmental effects under evaluation.

12.7. Other adverse effects

Information not available

DISPERDENTE 300 RO

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

SECTION 14. Transport information

The product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

14.1. UN number or ID number

Not applicable

14.2. UN proper shipping name

Not applicable

14.3. Transport hazard class(es)

Not applicable

14.4. Packing group

Not applicable

14.5. Environmental hazards

Not applicable

14.6. Special precautions for user

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Not applicable

14.7. Maritime transport in bulk according to IMO instruments

Information not relevant

SECTION 15. Regulatory information

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

Seveso Category - Directive 2012/18/EC: None

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006

Product

Point 3

Contained substance

Point 75

Regulation (EC) No. 2019/1148 - on the marketing and use of explosives precursors

Not applicable

Substances in Candidate List (Art. 59 REACH)

On the basis of available data, the product does not contain any SVHC in percentage \geq than 0,1%.

Substances subject to authorisation (Annex XIV REACH)

None

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:

None

Substances subject to the Rotterdam Convention:

None

Substances subject to the Stockholm Convention:

None

Healthcare controls

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

DISPERDENTE 300 RO**15.2. Chemical safety assessment**

A chemical safety assessment has not been performed for the preparation/for the substances indicated in section 3.

SECTION 16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

Acute Tox. 4	Acute toxicity, category 4
Eye Dam. 1	Serious eye damage, category 1
H302	Harmful if swallowed.
H318	Causes serious eye damage.
EUH031	Contact with acids liberates toxic gas.

LEGEND:

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- ATE: Acute Toxicity Estimate
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE NUMBER: Identifier in ESIS (European archive of existing substances)
- CLP: EC Regulation 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY

1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 2020/878 (II Annex of REACH Regulation)
4. Regulation (EU) 790/2009 (I Atp. CLP) of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament

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6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
 7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
 8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
 9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
 10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
 11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
 12. Regulation (EU) 2016/1179 (IX Atp. CLP)
 13. Regulation (EU) 2017/776 (X Atp. CLP)
 14. Regulation (EU) 2018/669 (XI Atp. CLP)
 15. Regulation (EU) 2019/521 (XII Atp. CLP)
 16. Delegated Regulation (UE) 2018/1480 (XIII Atp. CLP)
 17. Regulation (EU) 2019/1148
 18. Delegated Regulation (UE) 2020/217 (XIV Atp. CLP)
 19. Delegated Regulation (UE) 2020/1182 (XV Atp. CLP)
 20. Delegated Regulation (UE) 2021/643 (XVI Atp. CLP)
 21. Delegated Regulation (UE) 2021/849 (XVII Atp. CLP)
- The Merck Index. - 10th Edition
 - Handling Chemical Safety
 - INRS - Fiche Toxicologique (toxicological sheet)
 - Patty - Industrial Hygiene and Toxicology
 - N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
 - IFA GESTIS website
 - ECHA website
 - Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Provide appointed staff with adequate training on how to use chemical products.

CALCULATION METHODS FOR CLASSIFICATION

Chemical and physical hazards: Product classification derives from criteria established by the CLP Regulation, Annex I, Part 2. The data for evaluation of chemical-physical properties are reported in section 9.

Health hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 3, unless determined otherwise in Section 11.

Environmental hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 4, unless determined otherwise in Section 12.

Changes to previous review:

The following sections were modified:

02 / 03 / 04 / 08 / 09 / 11 / 12 / 15 / 16.

INFORMATION SHEET

PRODUCT: **DISPERDENTE 300 RO**

APPLICATIONS

Il **DISPERDENTE 300 RO** is a specific antiscalant to prevent deposits on reverse osmosis membranes

CHARACTERISTICS

Formulated based on carboxylic derivatives and organic derivatives of phosphorus.

The product is specifically suitable for preventing the precipitation of calcium carbonate, and is also effective on the main salts of low solubility such as calcium sulphate and magnesium hydroxide.

The product also has a stabilized sulphite-based component that is particularly effective in eliminating residual chlorine.

DISPERDENTE 300 RO as a very high dispersing activity when compared to similar products with equivalent molecular weight.

The stabilizing action of the encrusting salts is carried out at sub-stoichiometric dosages (threshold effect) by means of a chemisorption of the anti-encrusting agents on the growth sites of the crystals in the formation phase.

This allows the above salts to be kept in solution by forming soluble complexes under supersaturation.

When the precipitation conditions are reached, the material that should in any case separate is kept in an incoherent and non-aggregate form.

Follow: Disperdente 300 RO

The membranes will thus be protected from mineral deposits, up to the normal amounts reached in the concentrate.

DISPERDENTE 300 RO is effective in a wide range of pH values and at the operating temperatures of reverse osmosis systems.

Its use is absolutely safe for toxicological and ecological purposes. In fact, it is not toxic to humans or animals (fish). It does not emit vapors and does not give rise to dangerous decomposition products.

DOSAGE

DISPERDENTE 300 RO is normally dosed on the reverse osmosis membranes on a continuous basis.

The concentration of active product in the system depends on the chemical-physical characteristics of the water influencing the system and on those it takes on as a result of the concentration it undergoes as it passes through the membranes.

Indicative dosages of 5 – 10 ppm are foreseen for raw waters of normal salinity.

Our However, Technical Assistance is always able to indicate the optimal dosage in relation to the characteristics of the circuits and the water to be treated.

PACKING

II DISPERDENTE 300 RO is packed in 25 - 220 kg drums or 1000 kg tanks

January 2019

FORMULA 220 NA

Safety Data Sheet

According to Annex II to REACH - Regulation 2020/878

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

1.1. Product identifier

Product name **FORMULA 220 NA**
 Chemical name and synonym **Polycarboxylic derivatives**

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

Intended use **Product for reverse osmosis system**

Identified Uses	Industrial	Professional	Consumer
Water Treatment	✓	✓	-

1.3. Details of the supplier of the safety data sheet

Name **FACCI SERVICE SRL**
 Full address **VIA G.PERLASCA 1/11**
 District and Country **24057 MARTINENGO (BG)**
ITALY
 Tel. **+39 0363987998**

e-mail address of the competent person responsible for the Safety Data Sheet Supplier: **water.treatment@facci-service.it**
FACCI SERVICE SRL

1.4. Emergency telephone number

For urgent inquiries refer to **Centro Antiveleni di Milano 02 66101029 (CAV Ospedale Niguarda Ca` Granda -Milano)**

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2020/878.

Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

Skin corrosion, category 1A	H314	Causes severe skin burns and eye damage.
Serious eye damage, category 1	H318	Causes serious eye damage.

FORMULA 220 NA

Safety Data Sheet

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Serious eye damage, category 1	H318	Causes serious eye damage.

FORMULA 220 NA

2.2. Label elements

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:



Signal words: Danger

Hazard statements:

H314 Causes severe skin burns and eye damage.

Precautionary statements:

P260 Do not breathe dust / fume / gas / mist / vapours / spray.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P280 Wear protective gloves/ protective clothing / eye protection / face protection.
P310 Immediately call a POISON CENTER / doctor / . . .
P264 Wash with water thoroughly after handling.

Contains: SODIUM HYDROXIDE

2.3. Other hazards

On the basis of available data, the product does not contain any PBT or vPvB in percentage \geq than 0,1%.

The product does not contain substances with endocrine disrupting properties in concentration \geq 0.1%.

SECTION 3. Composition/information on ingredients

3.2. Mixtures

Contains: Polycarboxylic derivatives.

Identification	x = Conc. %	Classification 1272/2008 (CLP)
SODIUM HYDROXIDE		
CAS 1310-73-2	$12 \leq x < 13,5$	Met. Corr. 1 H290, Skin Corr. 1A H314, Eye Dam. 1 H318
EC 215-185-5		Skin Corr. 1B H314: $\geq 2\%$, Skin Irrit. 2 H315: $\geq 0,5\%$, Eye Dam. 1 H318: $\geq 2\%$, Eye Irrit. 2 H319: $\geq 0,5\%$
INDEX 011-002-00-6		
REACH Reg. 01-		

FORMULA 220 NA

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The full wording of hazard (H) phrases is given in section 16 of the sheet.

SECTION 4. First aid measures

4.1. Description of first aid measures

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 30-60 minutes, opening the eyelids fully. Get medical advice/attention.

SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.

INGESTION: Have the subject drink as much water as possible. Get medical advice/attention. Do not induce vomiting unless explicitly authorised by a doctor.

INHALATION: Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.

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

Specific information on symptoms and effects caused by the product are unknown.

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

Information not available

SECTION 5. Firefighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT

The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.

UNSUITABLE EXTINGUISHING EQUIPMENT

None in particular.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Do not breathe combustion products.

5.3. Advice for firefighters

GENERAL INFORMATION

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

FORMULA 220 NA**SECTION 6. Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures**

Block the leakage if there is no hazard.

Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.

Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7. Handling and storage**7.1. Precautions for safe handling**

Ensure that there is an adequate earthing system for the equipment and personnel. Avoid contact with eyes and skin. Do not breathe powders, vapours or mists. Do not eat, drink or smoke during use. Wash hands after use. Avoid leakage of the product into the environment.

7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Store in a ventilated and dry place, far away from sources of ignition. Keep containers well sealed. Keep the product in clearly labelled containers. Avoid overheating. Avoid violent blows. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s)

Information not available

SECTION 8. Exposure controls/personal protection**8.1. Control parameters**

Regulatory References:

CZE Česká Republika Nařízení vlády č. 41/2020 Sb. Nařízení vlády, kterým se mění nařízení vlády č. 361/2007 Sb., kterým se stanoví podmínky ochrany zdraví při

FORMULA 220 NA

FRA	France	práci, ve znění pozdějších předpisů Valeurs limites d'exposition professionnelle aux agents chimiques en France. ED 984 - INRS
HUN	Magyarország	Az innovációért és technológiáért felelős miniszter 5/2020. (II. 6.) ITM rendelete a kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
GBR	United Kingdom TLV-ACGIH	EH40/2005 Workplace exposure limits (Fourth Edition 2020) ACGIH 2020

SODIUM HYDROXIDE

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m ³	ppm	mg/m ³	ppm	
TLV	CZE	1		2		
VLEP	FRA	2				
AK	HUN	1		2		
WEL	GBR			2		
TLV-ACGIH				2 (C)		

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers				Effects on workers			
	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation			1 mg/m ³	VND			1 mg/m ³	VND

Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.

VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified.

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.

When choosing personal protective equipment, ask your chemical substance supplier for advice.

Personal protective equipment must be CE marked, showing that it complies with applicable standards.

Provide an emergency shower with face and eye wash station.

HAND PROTECTION

Protect hands with category III work gloves (see standard EN 374).

The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

FORMULA 220 NA

SKIN PROTECTION

Wear category III professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

EYE PROTECTION

Wear a hood visor or protective visor combined with airtight goggles (see standard EN 166).

RESPIRATORY PROTECTION

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, use a mask with a type B filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Value	Information
Appearance	liquid	
Colour	colourless	
Odour	Not available	
Melting point / freezing point	Not available	
Initial boiling point	Not available	
Flammability	not flammable	
Lower explosive limit	Not available	
Upper explosive limit	Not available	
Flash point	> 93 °C	
Auto-ignition temperature	Not available	
Decomposition temperature	Not available	
pH	12,5	
Kinematic viscosity	Not available	
Solubility	complete	
Partition coefficient: n-octanol/water	Not available	Reason for missing data:Irrelevant for classification purposes.
Vapour pressure	Not available	Remark:similar to water
Density and/or relative density	1 kg/l	
Relative vapour density	Not available	
Particle characteristics	Not applicable	

9.2. Other information

FORMULA 220 NA

9.2.1. Information with regard to physical hazard classes
Information not available

9.2.2. Other safety characteristics

Information not available

SECTION 10. Stability and reactivity

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions

No hazardous reactions are foreseeable in normal conditions of use and storage.

10.4. Conditions to avoid

None in particular. However the usual precautions used for chemical products should be respected.

SODIUM HYDROXIDE

Avoid exposure to: air,moisture,sources of heat.

10.5. Incompatible materials

SODIUM HYDROXIDE

Incompatible with: strong acids,ammonia,zinc,lead,aluminium,water,flammable liquids.

10.6. Hazardous decomposition products

Information not available

SECTION 11. Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.

It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

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

FORMULA 220 NA

Metabolism, toxicokinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

Information not available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Information not available

Interactive effects

Information not available

ACUTE TOXICITY

ATE (Inhalation) of the mixture:	Not classified (no significant component)
ATE (Oral) of the mixture:	Not classified (no significant component)
ATE (Dermal) of the mixture:	Not classified (no significant component)

SODIUM HYDROXIDE

LD50 (Oral):	1350 mg/kg Rat
LD50 (Dermal):	1350 mg/kg Rat

SKIN CORROSION / IRRITATION

Corrosive for the skin

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye damage

RESPIRATORY OR SKIN SENSITISATION

FORMULA 220 NA

Does not meet the classification criteria for this hazard class

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

11.2. Information on other hazards

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with human health effects under evaluation.

SECTION 12. Ecological information

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation.

12.1. Toxicity

FORMULA 220 NA**SODIUM HYDROXIDE**

LC50 - for Fish

35 mg/l/96h

EC50 - for Crustacea

40,4 mg/l/48h

12.2. Persistence and degradability**SODIUM HYDROXIDE**

Solubility in water

> 10000 mg/l

Degradability: information not available

12.3. Bioaccumulative potential

Information not available

12.4. Mobility in soil

Information not available

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage \geq than 0,1%.

12.6. Endocrine disrupting properties

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with environmental effects under evaluation.

12.7. Other adverse effects

Information not available

SECTION 13. Disposal considerations**13.1. Waste treatment methods**

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

Waste transportation may be subject to ADR restrictions.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

SECTION 14. Transport information

FORMULA 220 NA

14.1. UN number or ID number

ADR / RID, 3266
IMDG, IATA:

14.2. UN proper shipping name

ADR / RID: CORROSIVE LIQUID, BASIC, INORGANIC (Sodium Hydroxide)
IMDG: CORROSIVE LIQUID, BASIC, INORGANIC (Sodium Hydroxide)
IATA: CORROSIVE LIQUID, BASIC, INORGANIC (Sodium Hydroxide)

14.3. Transport hazard class(es)

ADR / RID: Class: 8 Label: 8

IMDG: Class: 8 Label: 8

IATA: Class: 8 Label: 8



14.4. Packing group

ADR / RID, II
IMDG, IATA:

14.5. Environmental hazards

ADR / RID: NO
IMDG: NO
IATA: NO

14.6. Special precautions for user

ADR / RID:	HIN - Kemler: 80	Limited Quantities: 1 L	Tunnel restriction code: (E)
IMDG:	Special provision: - EMS: F-A, S-B	Limited Quantities: 1 L	
IATA:	Cargo:	Maximum quantity: 30 L	Packaging instructions: 855
	Pass.:	Maximum quantity: 1 L	Packaging instructions: 851
	Special provision:	A3, A803	

14.7. Maritime transport in bulk according to IMO instruments

FORMULA 220 NA

Information not relevant

SECTION 15. Regulatory information

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

Seveso Category - Directive 2012/18/EC: None

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006

Product

Point 3

Contained substance

Point 75

Regulation (EC) No. 2019/1148 - on the marketing and use of explosives precursors

Not applicable

Substances in Candidate List (Art. 59 REACH)

On the basis of available data, the product does not contain any SVHC in percentage \geq than 0,1%.

Substances subject to authorisation (Annex XIV REACH)

None

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:

None

Substances subject to the Rotterdam Convention:

None

Substances subject to the Stockholm Convention:

None

Healthcare controls

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

15.2. Chemical safety assessment

A chemical safety assessment has not been performed for the preparation/for the substances indicated in section 3.

FORMULA 220 NA**SECTION 16. Other information**

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

Met. Corr. 1	Substance or mixture corrosive to metals, category 1
Skin Corr. 1A	Skin corrosion, category 1A
Eye Dam. 1	Serious eye damage, category 1
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.

LEGEND:

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- ATE: Acute Toxicity Estimate
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE NUMBER: Identifier in ESIS (European archive of existing substances)
- CLP: EC Regulation 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY

1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 2020/878 (II Annex of REACH Regulation)
4. Regulation (EU) 790/2009 (I Atp. CLP) of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament

FORMULA 220 NA

6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
 7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
 8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
 9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
 10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
 11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
 12. Regulation (EU) 2016/1179 (IX Atp. CLP)
 13. Regulation (EU) 2017/776 (X Atp. CLP)
 14. Regulation (EU) 2018/669 (XI Atp. CLP)
 15. Regulation (EU) 2019/521 (XII Atp. CLP)
 16. Delegated Regulation (UE) 2018/1480 (XIII Atp. CLP)
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 - Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

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01 / 02 / 03 / 04 / 08 / 09 / 10 / 11 / 12 / 14 / 15 / 16.

INFORMATION SHEET

PRODUCT: FORMULA 220 NA

APPLICATIONS

The product **FORMULA 220 NA** is a product used in double stage reverse osmosis systems to neutralize the carbon dioxide of the first and second stage.

CHARACTERISTICS

The **FORMULA 220 NA** formulation is a product based on polymers and carboxylic derivatives in an alkaline solution with anti-limestone functions capable of keeping even any traces of residual hardness in the solution.

The stabilizing action of the encrusting salts is carried out at sub-stoichiometric dosages by means of a chemisorption of the anti-encrusting agents on the growth sites of the crystals in the formation phase.

This allows the above salts to be kept in solution by forming soluble complexes under supersaturation.

When the precipitation conditions are reached, the material that should in any case separate is kept in an incoherent and non-aggregate form.

The membranes will thus be protected from mineral deposits, up to the normal amounts reached in the concentrate.

The **FORMUAL 220 NA** product is effective in a wide range of pH values and at the operating temperatures of reverse osmosis systems.

Its use is absolutely safe for toxicological and ecological purposes. In fact, it is not toxic to humans or animals (fish). It does not emit vapors and does not give rise to dangerous decomposition products.

DOSAGE

The **FORMULA 220 NA** product is normally dosed on the reverse osmosis membranes on a continuous basis.

The concentration of active product in the system depends on the chemical-physical characteristics of the water influencing the system and on those it takes on as a result of the concentration it undergoes as it passes through the membranes.

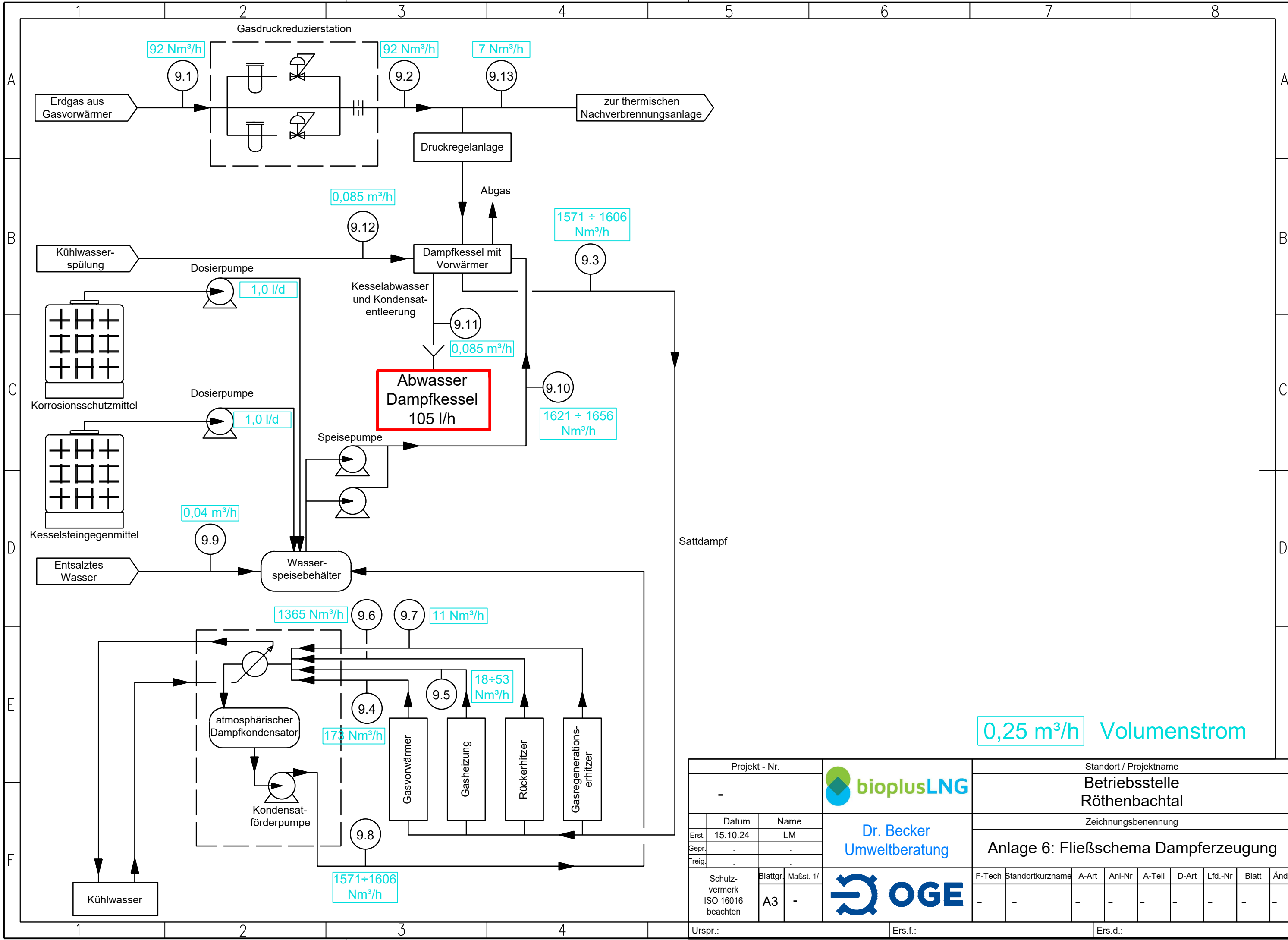
Dosage for two-stage systems: 1-100 ppm, variable value depending on the inlet water.

Our However, Technical Assistance is always able to indicate the optimal dosage in relation to the characteristics of the circuits and the water to be treated.

PACKING

The **FORMULA 220 NA** product is packed in 25 - 220 kg drums or 1000 kg tanks.

December 2021



Projekt - Nr.		-		bioplusLNG		Standort / Projektname								
				Dr. Becker Umweltberatung		Betriebsstelle Röthenbachtal								
						Zeichnungsbeneennung								
						Anlage 6: Fließschema Dampferzeugung								
Erst.	15.10.24	Name	LM			F-Tech	Standortkurzname	A-Art	Anl-Nr	A-Teil	D-Art	Lfd.-Nr	Blatt	Änd
Gepr.	.					-	-	-	-	-	-	-	-	-
Freig.	.													
Schutzvermerk ISO 16016 beachten		Blattgr.	A3	Maßst. 1/	-	OGE								
Urspr.:		Ers.f.:		Ers.d.:										



SAFETY DATA SHEET

SOLUS AP27

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

1.1. Product identifier

Trade name or designation of the mixture SOLUS AP27

Issue date 17/03/2014

Version number 1.4

Revision date 12/05/2022

Supersedes date 16/11/2020

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

Identified uses Internal boiler water treatment

Uses advised against None known.

1.3. Details of the supplier of the safety data sheet

SUEZ WTS Italy S.R.L.

Via Broletto 46

20121 Milano (MI)

Tel : 02 693311

e-mail : emea.productregulatory.wts@suez.com

1.4. Emergency telephone number

Multilingual emergency number (24/7)

Europe, Middle East, Africa, Israel (Europe and English language speaking countries):

+44(0)1235 239670

Middle East & Africa (speaking Arabic):

+44(0)1235 239671 SUEZWATERTECH29003-NCEC

Centro Antiveleni Ospedale Niguarda

Centro antiveleni, Ospedale pediatrico Bambino Gesù, Dipartimento emergenza e accettazione DEA, piazza Sant'Onofrio 4, Roma Tel 68593726

Centro antiveleni, Azienda ospedaliera universitaria riuniti, viale Luigi Pinto 1, Foggia Tel 800183459

Centro antiveleni, Azienda ospedaliera "Antonio Cardarelli", III Servizio di anestesia e rianimazione, Via Antonio Cardarelli 9, Napoli Tel 081-5453333

Centro antiveleni Policlinico "Umberto I", PRGM tossicologia d'urgenza, viale del Policlinico 155, Roma Tel 06-49978000

Centro antiveleni del Policlinico "Agostino Gemelli", Servizio di tossicologia clinica, largo Agostino Gemelli 8, Roma Tel 06-3054343

Centro antiveleni, Azienda ospedaliera universitaria Careggi, U.O. Tossicologia medica, via Largo Brambilla 3, Firenze Tel 055-7947819

Centro antiveleni, Centro nazionale d'informazione tossicologica, IRCCS Fondazione Salvatore Maugeri Clinica del lavoro e della riabilitazione, via Salvatore Maugeri 10, Pavia Tel 0382-24444

Centro antiveleni, Azienda ospedaliera Niguarda Ca' Grande, piazza Ospedale Maggiore 3, Milano Tel 02-66101029

Centro antiveleni, Azienda ospedaliera "Papa Giovanni XXIII", tossicologia clinica, Dipartimento di farmacia clinica e farmacologia, piazza OMS 1, Bergamo Tel 800883300

Centro antiveleni dell'Azienda ospedaliera universitaria integrata (AOUI) di Verona sede di Borgo Trento, piazzale Aristide Stefani, 1 - 37126 Verona Tel 800011858

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended

Physical hazards

Corrosive to metals

Category 1

H290 - May be corrosive to metals.



SAFETY DATA SHEET

SOLUS AP27

Health hazards

Skin corrosion/irritation	Category 1B	H314 - Causes severe skin burns and eye damage.
Serious eye damage/eye irritation	Category 1	H318 - Causes serious eye damage.

Hazard summary May be corrosive to metals. Causes severe skin burns and eye damage. Occupational exposure to the substance or mixture may cause adverse health effects.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: Sodium hydroxide

Hazard pictograms



Signal word Danger

Hazard statements

H290 May be corrosive to metals.
 H314 Causes severe skin burns and eye damage.

Precautionary statements

Prevention

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

Response

P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
 P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 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 CENTRE/doctor.

Storage

P406 Store in a corrosion resistant container with a resistant inner liner.

Disposal

Not available.

Supplemental label information None.

2.3. Other hazards

This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII. The product does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

Mixtures

Chemical description Aqueous alkaline solution of inorganic salt and polymer

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Sodium hydroxide	1 - < 3	1310-73-2 215-185-5	01-2119457892-27	011-002-00-6	

Classification: Met. Corr. 1;H290, Skin Corr. 1A;H314

Specific Concentration Limits: Skin Corr. 1A;H314: C >= 5 %, Skin Corr. 1B;H314: 2 % <= C < 5 %, Skin Irrit. 2;H315: 0.5 % <= C < 2 %, Eye Dam. 1;H314: C >= 2 %, Eye Irrit. 2;H319: 0.5 % <= C < 2 %



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List of abbreviations and symbols that may be used above

ATE: Acute toxicity estimate.
M: M-factor
PBT: persistent, bioaccumulative and toxic substance.
vPvB: very persistent and very bioaccumulative substance.
#: This substance has been assigned Union workplace exposure limit(s).
All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

The full text for all H-statements is displayed in section 16.

SECTION 4: First aid measures

General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
4.1. Description of first aid measures	
Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control centre immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control centre immediately.
Ingestion	Call a physician or poison control centre immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
4.2. Most important symptoms and effects, both acute and delayed	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.
4.3. Indication of any immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

SECTION 5: Firefighting measures

5.1. Extinguishing media	
Suitable extinguishing media	Water fog. Carbon dioxide (CO ₂). Foam. Dry chemical powder.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
5.2. Special hazards arising from the substance or mixture	During fire, gases hazardous to health may be formed.
5.3. Advice for firefighters	
Special protective equipment for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Special fire fighting procedures	Move containers from fire area if you can do so without risk. Prevent spillage and fire-fighting water from entering in public sewers or the immediate environment.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures	
For non-emergency personnel	Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist/vapours. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
For emergency responders	Keep unnecessary personnel away. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. Use personal protection recommended in Section 8 of the SDS.
6.2. Environmental precautions	Avoid discharge into drains, water courses or onto the ground.



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6.3. Methods and material for containment and cleaning up Prevent entry into waterways, sewer, basements or confined areas.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb spillage to prevent material damage. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use.

6.4. Reference to other sections For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Do not breathe mist/vapours. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities Store locked up. Store in a cool, dry place out of direct sunlight. Store in corrosive resistant container with a resistant inner liner. Store in tightly closed container. Keep only in the original container. Store away from incompatible materials (see Section 10 of the SDS).

7.3. Specific end use(s) Only for industrial users

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Italy. Occupational Exposure Limits Components

Type	Value
Ceiling	2 mg/m ³

Biological limit values No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no effect levels (DNELs)

Workers

Components	Value	Assessment factor	Notes
Sodium hydroxide (CAS 1310-73-2) Long-term, Local, Inhalation	1 mg/m ³	1	irritation respiratory tract

Predicted no effect concentrations (PNECs) Not available.

8.2. Exposure controls

Appropriate engineering controls Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

General information Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection Wear safety glasses with side shields (or goggles) and a face shield.
CEN : EN 166

Skin protection



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- Hand protection	For prolonged or repeated skin contact use suitable protective gloves. Suitable gloves can be recommended by the glove supplier. Gauntlet type neoprene gloves (Protection against unintentional short-term contact) Gauntlet type nitrile gloves (Protection against unintentional short-term contact) Coating thickness: 0.5 mm Penetration time: > 480 min CEN : EN 374-1/2/3/4; EN 420
- Other	Wear appropriate chemical resistant clothing. CEN : EN ISO 13688; EN ISO 6530; EN ISO 6529; EN 14605
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. In case of insufficient ventilation, use a breathing mask with filter type: A2-P2 CEN : EN 140; EN 143; EN 149
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
Hygiene measures	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.
Environmental exposure controls	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid.
Form	Liquid
Colour	Colourless to light yellow
Odour	Slight ammonia
Melting point/freezing point	-1 °C
Boiling point or initial boiling point and boiling range	104 °C
Flammability	Not applicable.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Not available.
Explosive limit – upper (%)	Not available.
Flash point	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
pH (concentrated product)	> 13
Kinematic viscosity	Not available.
Solubility	
Solubility (water)	100 %
Partition coefficient (n-octanol/water) (log value)	Not available.
Vapour pressure	18 mm Hg
Vapour pressure temp.	21 °C
Density and/or relative density	
Relative density	1,04
Relative density temperature	21 °C
Vapour density	< 1 (Air = 1)
Particle characteristics	Not available.



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9.2. Other information

9.2.1. Information with regard to physical hazard classes No relevant additional information available.

9.2.2. Other safety characteristics

Evaporation rate	< 1 (Ether = 1)
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.
pH in aqueous solution	12,5 (5% SOL.)
Pour point	2 °C
Shelf life	720 days
Specific gravity	1,04
Viscosity	10 cps
Viscosity temperature	21 °C
VOC	0 % (Estimated)

SECTION 10: Stability and reactivity

10.1. Reactivity	May be corrosive to metals.
10.2. Chemical stability	Material is stable under normal conditions.
10.3. Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
10.4. Conditions to avoid	High temperatures.
10.5. Incompatible materials	Strong acids. Strong oxidising agents. Metals. Alkalies.
10.6. Hazardous decomposition products	Ammonia. Nitrogen oxides (NOx). Sulphur oxides. Carbon oxides.

SECTION 11: Toxicological information

General information Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system. Prolonged inhalation may be harmful.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns.

Symptoms Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

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

Acute toxicity

Product	Species	Test Results
SOLUS AP27		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg (Calculated according to GHS additivity formula)
Inhalation		
<i>Mist</i>		
LC50	Rat	> 5 mg/l, 4 Hours (Calculated according to GHS additivity formula)
Oral		
LD50	Rat	> 5000 mg/kg (Calculated according to GHS additivity formula)



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Components	Species	Test Results
Sodium hydroxide (CAS 1310-73-2)		
Acute		
Dermal		
LD50	Rabbit	1350 mg/kg
Oral		
LD50	Rabbit	> 500 mg/kg
Skin corrosion/irritation	Causes severe skin burns and eye damage.	
Serious eye damage/eye irritation	Causes serious eye damage.	
Respiratory sensitisation	Based on available data, the classification criteria are not met.	
Skin sensitisation	Based on available data, the classification criteria are not met.	
Germ cell mutagenicity	Based on available data, the classification criteria are not met.	
Carcinogenicity	Based on available data, the classification criteria are not met.	
Reproductive toxicity	Based on available data, the classification criteria are not met.	
Specific target organ toxicity - single exposure	Based on available data, the classification criteria are not met.	
Specific target organ toxicity - repeated exposure	Based on available data, the classification criteria are not met.	
Aspiration hazard	Based on available data, the classification criteria are not met.	
Mixture versus substance information	No information available.	
11.2. Information on other hazards		
Endocrine disrupting properties	The product does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.	
Other information	Not available.	

SECTION 12: Ecological information

12.1. Toxicity Based on available data, the classification criteria are not met for hazardous to the aquatic environment.

Product	Species	Test Results	
SOLUS AP27			
Aquatic			
Crustacea	LC50	Daphnia magna	> 10000 mg/l, 48 hour (pH adjusted)
	NOEL	Daphnia magna	10000 mg/l, 48 hour (pH adjusted)
Fish	LC50	Fathead minnow	> 10000 mg/l, 96 hour (pH adjusted)
	NOEL	Fathead minnow	5000 mg/l, 96 hour (pH adjusted)

12.2. Persistence and degradability No data is available on the degradability of this product.

12.3. Bioaccumulative potential

Partition coefficient n-octanol/water (log Kow) Not available.

Bioconcentration factor (BCF) Not available.

12.4. Mobility in soil No data available.

12.5. Results of PBT and vPvB assessment This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII.

12.6. Endocrine disrupting properties The product does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.



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12.7. Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

According to Hazardous Waste Regulations.
European List of Wastes (LoW) code recommendation : 15 01 10
15 Waste packaging; absorbents, wiping cloths, filter materials and protective clothing not otherwise specified.
15 01 Packaging (including separately collected municipal packaging waste).
15 01 10 Packaging containing residues of or contaminated by dangerous substances.
Depending on the origin and state of the waste, other codes may be applicable too.

Disposal methods/information Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

According to Hazardous Waste Regulations.
European List of Wastes (LoW) code recommendation : 16 03 05
16 Wastes not otherwise specified in the list.
16 03 Off-specification batches and unused products.
16 03 05 Organic wastes containing dangerous substances.
Depending on the origin and state of the waste, other codes may be applicable too.

Special precautions Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. UN number or ID number UN1824

14.2. UN proper shipping name SODIUM HYDROXIDE SOLUTION

14.3. Transport hazard class(es)

Class 8

Subsidiary risk -

Tunnel restriction code (E)

14.4. Packing group II

14.5. Environmental hazards No.

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

RID

14.1. UN number or ID number UN1824

14.2. UN proper shipping name SODIUM HYDROXIDE SOLUTION

14.3. Transport hazard class(es)

Class 8

Subsidiary risk -

14.4. Packing group II

14.5. Environmental hazards No.

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

ADN

14.1. UN number or ID number UN1824



SAFETY DATA SHEET

SOLUS AP27

14.2. UN proper shipping name SODIUM HYDROXIDE SOLUTION

14.3. Transport hazard class(es)

Class 8

Subsidiary risk -

14.4. Packing group II

14.5. Environmental hazards No.

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IATA

14.1. UN number or ID number UN1824

14.2. UN proper shipping name SODIUM HYDROXIDE SOLUTION

14.3. Transport hazard class(es)

Class 8

Subsidiary risk -

14.4. Packing group II

14.5. Environmental hazards No.

ERG Code Not available.

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

14.1. UN number or ID number UN1824

14.2. UN proper shipping name SODIUM HYDROXIDE SOLUTION

14.3. Transport hazard class(es)

Class 8

Subsidiary risk -

14.4. Packing group II

14.5. Environmental hazards

Marine pollutant No.

Ems F-A, S-B

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Not established.

14.7. Maritime transport in bulk according to IMO instruments Not established.

ADN; ADR; IATA; IMDG; RID



SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended
Not listed.



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Regulation (EU) 2019/1021 On persistent organic pollutants (recast), as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Sodium hydroxide (CAS 1310-73-2)

75

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Not listed.

Other regulations

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

National regulations

Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

NSF Registered and/or meets USDA (according to 1998 guidelines):

Registration No. – 152488

Category Code(s):

G5 Cooling and retort water treatment products

G6 Boiler treatment products, steam line products – food contact

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

SECTION 16: Other information

List of abbreviations

ADN: European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways.

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

CEN: European Committee for Standardization.

CLP: Classification, Labeling and Packaging REGULATION (EC) No 1272/2008 on classification, labeling and packaging of substances and mixtures.

EC50: Effective Concentration 50%.



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IATA: International Air Transport Association.
IBC Code: International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk.
IMDG: International Maritime Dangerous Goods.
LC50: Lethal Concentration 50%.
LD50: Lethal Dose 50%.
MARPOL: International Convention for the Prevention of Pollution from Ships.
NOEL: No observed effect level.
PBT: Persistent, bioaccumulative and toxic.
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.
STEL: Short term exposure limit.
TOC: Total Organic Carbon.
vPvB: Very persistent and very bioaccumulative.
EC-No: European Commission Number
COD: Chemical Oxygen Demand
IATA: International Air Transport Association
BOD: Biochemical oxygen demand.
Safety data sheets of raw materials.

References

Information on evaluation method leading to the classification of mixture

The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

Full text of any H-statements not written out in full under Sections 2 to 15

H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.

Revision information

This document has undergone significant changes and should be reviewed in its entirety.

Training information

Follow training instructions when handling this material.

Based on EC Directive / Regulations

(EC) No 1907/2006 (REACH)
(EU) No 2020/878
(EC) No 1272/2008
(EU) No 1357/2014

Further information

Correction in Section: 2,3,4,5,6,7,8,9,10,11,12,13,15,16



SAFETY DATA SHEET

CORTROL OS5300

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

1.1. Product identifier

Trade name or designation of the mixture CORTROL OS5300

Issue date 12/12/2008

Version number 10.1

Revision date 01/04/2022

Supersedes date 23/02/2021

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

Identified uses Organic oxygen scavenger

Uses advised against None known.

1.3. Details of the supplier of the safety data sheet

SUEZ WTS Italy S.R.L.

Via Broletto 46

20121 Milano (MI)

Tel : 02 693311

e-mail : emea.productregulatory.wts@suez.com

1.4. Emergency telephone number

Multilingual emergency number (24/7)

Europe, Middle East, Africa, Israel (Europe and English language speaking countries):

+44(0)1235 239670

Middle East & Africa (speaking Arabic):

+44(0)1235 239671 SUEZWATERTECH29003-NCEC

Centro Antiveleni Ospedale Niguarda

Centro antiveleni, Ospedale pediatrico Bambino Gesù, Dipartimento emergenza e accettazione DEA, piazza Sant'Onofrio 4, Roma Tel 68593726

Centro antiveleni, Azienda ospedaliera universitaria riuniti, viale Luigi Pinto 1, Foggia Tel 800183459

Centro antiveleni, Azienda ospedaliera "Antonio Cardarelli", III Servizio di anestesia e rianimazione, Via Antonio Cardarelli 9, Napoli Tel 081-5453333

Centro antiveleni Policlinico "Umberto I", PRGM tossicologia d'urgenza, viale del Policlinico 155, Roma Tel 06-49978000

Centro antiveleni del Policlinico "Agostino Gemelli", Servizio di tossicologia clinica, largo Agostino Gemelli 8, Roma Tel 06-3054343

Centro antiveleni, Azienda ospedaliera universitaria Careggi, U.O. Tossicologia medica, via Largo Brambilla 3, Firenze Tel 055-7947819

Centro antiveleni, Centro nazionale d'informazione tossicologica, IRCCS Fondazione Salvatore Maugeri Clinica del lavoro e della riabilitazione, via Salvatore Maugeri 10, Pavia Tel 0382-24444

Centro antiveleni, Azienda ospedaliera Niguarda Ca' Grande, piazza Ospedale Maggiore 3, Milano Tel 02-66101029

Centro antiveleni, Azienda ospedaliera "Papa Giovanni XXIII", tossicologia clinica, Dipartimento di farmacia clinica e farmacologia, piazza OMS 1, Bergamo Tel 800883300

Centro antiveleni dell'Azienda ospedaliera universitaria integrata (AOUI) di Verona sede di Borgo Trento, piazzale Aristide Stefani, 1 - 37126 Verona Tel 800011858

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended



SAFETY DATA SHEET

CORTROL OS5300

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

1.1. Product identifier

Trade name or designation of the mixture CORTROL OS5300

Issue date 12/12/2008

Version number 10.1

Revision date 01/04/2022

Supersedes date 23/02/2021

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

Identified uses Organic oxygen scavenger

Uses advised against None known.

1.3. Details of the supplier of the safety data sheet

SUEZ WTS Italy S.R.L.

Via Broletto 46

20121 Milano (MI)

Tel : 02 693311

e-mail : emea.productregulatory.wts@suez.com

1.4. Emergency telephone number

Multilingual emergency number (24/7)

Europe, Middle East, Africa, Israel (Europe and English language speaking countries):

+44(0)1235 239670

Middle East & Africa (speaking Arabic):

+44(0)1235 239671 SUEZWATERTECH29003-NCEC

Centro Antiveleni Ospedale Niguarda

Centro antiveleni, Ospedale pediatrico Bambino Gesù, Dipartimento emergenza e accettazione DEA, piazza Sant'Onofrio 4, Roma Tel 68593726

Centro antiveleni, Azienda ospedaliera universitaria riuniti, viale Luigi Pinto 1, Foggia Tel 800183459

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Physical hazards

Flammable liquids Category 3 H226 - Flammable liquid and vapour.

Health hazards

Serious eye damage/eye irritation Category 2 H319 - Causes serious eye irritation.
Skin sensitisation Category 1 H317 - May cause an allergic skin reaction.
Germ cell mutagenicity Category 2 H341 - Suspected of causing genetic defects.
Carcinogenicity Category 2 H351 - Suspected of causing cancer.
Specific target organ toxicity - single exposure Category 3 respiratory tract irritation H335 - May cause respiratory irritation.

Environmental hazards

Hazardous to the aquatic environment, long-term aquatic hazard Category 2 H411 - Toxic to aquatic life with long lasting effects.

Hazard summary

May be ignited by heat, sparks or flames. Suspected of causing cancer. Causes serious eye irritation. May cause irritation to the respiratory system. May cause an allergic skin reaction. Suspected of causing genetic defects. Dangerous for the environment if discharged into watercourses. Occupational exposure to the substance or mixture may cause adverse health effects.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: Hydroquinone, N,N Diethylhydroxylamine

Hazard pictograms



Signal word

Warning

Hazard statements

H226 Flammable liquid and vapour.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H341 Suspected of causing genetic defects.
H351 Suspected of causing cancer.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P273 Avoid release to the environment.

Response

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/attention.

Storage

Not available.

Disposal

Not available.

Supplemental label information None.



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2.3. Other hazards This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII. The product does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

Mixtures

Chemical description Aqueous solution of amine and aromatic alcohol

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
N,N Diethylhydroxylamine	20 - < 30	3710-84-7 223-055-4	01-2119962470-39	-	Classification: Flam. Liq. 3;H226, Acute Tox. 4;H312;(ATE: 1300 mg/kg), Acute Tox. 4;H332;(ATE: 11 mg/l), STOT SE 3;H335, Aquatic Chronic 2;H411
Hydroquinone	1 - < 3	123-31-9 204-617-8	01-2119524016-51	604-005-00-4	Classification: Acute Tox. 4;H302;(ATE: 302 mg/kg), Eye Dam. 1;H318, Skin Sens. 1B;H317, Muta. 2;H341, Carc. 2;H351, Aquatic Acute 1;H400(M=10), Aquatic Chronic 1;H410
Diethylamine	<= 0,3	109-89-7 203-716-3	-	612-003-00-X	# Classification: Flam. Liq. 2;H225, Acute Tox. 4;H302;(ATE: 540 mg/kg), Acute Tox. 3;H311;(ATE: 628 mg/kg), Acute Tox. 4;H332;(ATE: 11 mg/l), Skin Corr. 1A;H314, STOT SE 3;H335

List of abbreviations and symbols that may be used above

- ATE: Acute toxicity estimate.
- M: M-factor
- PBT: persistent, bioaccumulative and toxic substance.
- vPvB: very persistent and very bioaccumulative substance.
- #: This substance has been assigned Union workplace exposure limit(s).
- All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

The full text for all H-statements is displayed in section 16.

SECTION 4: First aid measures

General information Take off all contaminated clothing immediately. IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

4.1. Description of first aid measures

- Inhalation** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison centre or doctor/physician if you feel unwell.
- Skin contact** Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions.
- Eye contact** Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
- Ingestion** Rinse mouth. Get medical attention if symptoms occur.

4.2. Most important symptoms and effects, both acute and delayed Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. May cause an allergic skin reaction. Dermatitis. Rash.

4.3. Indication of any immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

SECTION 5: Firefighting measures

General fire hazards Flammable liquid and vapour.



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5.1. Extinguishing media

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Vapours may form explosive mixtures with air. Vapours may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Special protective equipment for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Special fire fighting procedures In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Prevent spillage and fire-fighting water from entering in public sewers or the immediate environment.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist/vapours. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

For emergency responders Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Avoid breathing mist/vapours. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil etc) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools. Prevent entry into waterways, sewer, basements or confined areas.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers.

6.4. Reference to other sections

For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist/vapours. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS). Store between 5 - 35 °C. Do not allow material to freeze.



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7.3. Specific end use(s) Only for industrial users

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Italy. Occupational Exposure Limits Components

Components	Type	Value
Diethylamine (CAS 109-89-7)	STEL	30 mg/m ³
		10 ppm
	TWA	15 mg/m ³
Hydroquinone (CAS 123-31-9)		5 ppm
	TWA	1 mg/m ³
N,N Diethylhydroxylamine (CAS 3710-84-7)	TWA	2 ppm

EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU Components

Components	Type	Value
Diethylamine (CAS 109-89-7)	STEL	30 mg/m ³
		10 ppm
	TWA	15 mg/m ³
		5 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no effect levels (DNELs)

Workers

Components	Value	Assessment factor	Notes	
Hydroquinone (CAS 123-31-9)	Long-term, Systemic, Dermal	3,33 mg/kg	45	
	Long-term, Systemic, Inhalation	2,1 mg/m ³	12,5	Carcinogenicity
				Carcinogenicity
N,N Diethylhydroxylamine (CAS 3710-84-7)	Long-term, Local, Inhalation	2,92 mg/m ³	12,5	
	Long-term, Systemic, Dermal	70 mg/kg	100	Repeated dose toxicity
	Long-term, Systemic, Inhalation	49,3 mg/m ³	25	Repeated dose toxicity
	Short-term, Local, Inhalation	8,76 mg/m ³	0,33	irritation respiratory tract
	Short-term, Systemic, Dermal	47 mg/kg	150	Acute toxicity
	Short-term, Systemic, Inhalation	45,6 mg/m ³	112,5	

Predicted no effect concentrations (PNECs)

Components	Value	Assessment factor	Notes
Hydroquinone (CAS 123-31-9)	Freshwater	0,57 µg/l	10
	Intermittent releases	1,34 µg/l	100
	Marine water	0,057 µg/l	100
	Sediment (freshwater)	0,0049 mg/kg	
	Sediment (marine water)	0,00049 mg/kg	
	Soil	0,00064 mg/kg	
	STP	0,71 mg/l	100
N,N Diethylhydroxylamine (CAS 3710-84-7)	Freshwater	8,2 µg/l	1000
	Intermittent releases	82 µg/l	



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Marine water	0,82 µg/l	10000
Sediment (freshwater)	0,065 mg/kg	
Sediment (marine water)	0,007 mg/kg	
Soil	6,4 mg/kg	50
STP	10 mg/l	10

8.2. Exposure controls

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.

Individual protection measures, such as personal protective equipment

General information Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection Wear safety glasses with side shields (or goggles).
 CEN : EN 166

Skin protection

- Hand protection Wear protective gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present.
 Neoprene gloves (Protection against unintentional short-term contact)
 Nitrile gloves (Protection against unintentional short-term contact)
 Rubber gloves (Protection against unintentional short-term contact)
 Coating thickness: 0.5 mm
 Penetration time: > 480 min
 CEN : EN 374-1/2/3/4; EN 420

- Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.
 CEN : EN ISO 13688; EN ISO 6529; EN 14605

Respiratory protection If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
 In case of insufficient ventilation, use a breathing mask with filter type: A2-P2
 CEN : EN 140; EN 143; EN 149

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

Hygiene measures Observe any medical surveillance requirements. When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

Environmental exposure controls Inform appropriate managerial or supervisory personnel of all environmental releases. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels. Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid.
Form	Liquid
Colour	Amber to brown
Odour	Amine
Melting point/freezing point	-12 °C
Boiling point or initial boiling point and boiling range	100 °C
Flammability	Not applicable.



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Upper/lower flammability or explosive limits

Explosive limit - lower (%) Not available.

Explosive limit – upper (%) Not available.

Flash point 50 °C P-M(CC)

Auto-ignition temperature Not available.

Decomposition temperature Not available.

pH (concentrated product) 9,8 Neat

Kinematic viscosity Not available.

Solubility

Solubility (water) 100 %

Partition coefficient (n-octanol/water) (log value) Not available.

Vapour pressure 18 mmHg

Vapour pressure temp. 21 °C

Density and/or relative density

Relative density 1

Relative density temperature 21 °C

Vapour density > 1

Particle characteristics Not available.

9.2. Other information

9.2.1. Information with regard to physical hazard classes No relevant additional information available.

9.2.2. Other safety characteristics

Evaporation rate Slower than Ether

Explosive properties Not explosive.

Oxidising properties Not oxidising.

Pour point -9 °C

Shelf life 270 Days

Specific gravity 1

Viscosity 10 mPa.s

Viscosity temperature 21 °C

VOC 25 % Calculated

SECTION 10: Stability and reactivity

10.1. Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability Material is stable under normal conditions.

10.3. Possibility of hazardous reactions No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point.

10.5. Incompatible materials Strong oxidising agents. Strong acids.

10.6. Hazardous decomposition products Ammonia. Carbon oxides. Nitrogen oxides (NOx).

SECTION 11: Toxicological information

General information Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Inhalation May cause irritation to the respiratory system. Prolonged inhalation may be harmful.



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Skin contact	May cause an allergic skin reaction.
Eye contact	Causes serious eye irritation.
Ingestion	May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.
Symptoms	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. May cause an allergic skin reaction. Dermatitis. Rash.

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

Acute toxicity

Product	Species	Test Results
CORTROL OS5300		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg (Calculated according to GHS additivity formula)
Inhalation		
<i>Mist</i>		
LC50	Rat	> 20 mg/l, 4 Hours (Calculated according to GHS additivity formula)
Oral		
LD50	Rat	> 5000 mg/kg (Calculated according to GHS additivity formula)

Components	Species	Test Results
Diethylamine (CAS 109-89-7)		
Acute		
Dermal		
LD50	Rabbit	628 mg/kg
Inhalation		
LC50	Rat	4000 ppm, 4 hour
Oral		
LD50	Rat	540 mg/kg
Hydroquinone (CAS 123-31-9)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg
Oral		
LD50	Rat	302 mg/kg
N,N Diethylhydroxylamine (CAS 3710-84-7)		
Acute		
Dermal		
LD50	Rabbit	1300 mg/kg
Inhalation		
LC50	Rat	9,5 mg/l, 4 hour
Oral		
LD50	Rat	2190 mg/kg

Skin corrosion/irritation	Based on available data, the classification criteria are not met.
Serious eye damage/eye irritation	Causes serious eye irritation.
Respiratory sensitisation	Based on available data, the classification criteria are not met.
Skin sensitisation	May cause an allergic skin reaction.



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Germ cell mutagenicity	Suspected of causing genetic defects.
Carcinogenicity	Suspected of causing cancer.
Reproductive toxicity	Based on available data, the classification criteria are not met.
Specific target organ toxicity - single exposure	May cause respiratory irritation.
Specific target organ toxicity - repeated exposure	Based on available data, the classification criteria are not met.
Aspiration hazard	Based on available data, the classification criteria are not met.
Mixture versus substance information	No information available.

11.2. Information on other hazards

Endocrine disrupting properties	The product does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Other information	Not available.

SECTION 12: Ecological information

12.1. Toxicity Toxic to aquatic life with long lasting effects.

Product	Species	Test Results
CORTROL OS5300		
Aquatic		
Crustacea	LC50 Daphnia magna	6,1 mg/l, 48 hour
	NOEL Daphnia magna	1,6 mg/l, 48 hour
Fish	LC50 Fathead minnow	1,4 mg/l, 96 hour
	NOEL Fathead minnow	0,78 mg/l, 96 hour

12.2. Persistence and degradability

- COD (mgO ₂ /g)	706 (calculated data)
- BOD 5 (mgO ₂ /g)	23 (calculated data)
- BOD 28 (mgO ₂ /g)	197 (calculated data)
- Closed Bottle Test (% Degradation in 28 days)	26 (calculated data)
- Zahn-Wellens Test (% Degradation in 28 days)	19 (calculated data)
- TOC (mg C/g)	154 (calculated data)

12.3. Bioaccumulative potential

Partition coefficient n-octanol/water (log K_{ow})	
Diethylamine	0,58
Hydroquinone	0,59

Bioconcentration factor (BCF) Not available.

12.4. Mobility in soil No data available.

12.5. Results of PBT and vPvB assessment This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII.

12.6. Endocrine disrupting properties The product does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7. Other adverse effects The product contains volatile organic compounds which have a photochemical ozone creation potential.

SECTION 13: Disposal considerations

13.1. Waste treatment methods



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Residual waste	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. According to Hazardous Waste Regulations. European List of Wastes (LoW) code recommendation : 15 01 10 15 01 Waste packaging; absorbents, wiping cloths, filter materials and protective clothing not otherwise specified. 15 01 Packaging (including separately collected municipal packaging waste). 15 01 10 Packaging containing residues of or contaminated by dangerous substances. Depending on the origin and state of the waste, other codes may be applicable too.
Disposal methods/information	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations. According to Hazardous Waste Regulations. European List of Wastes (LoW) code recommendation : 16 03 05 16 Wastes not otherwise specified in the list. 16 03 Off-specification batches and unused products. 16 03 05 Organic wastes containing dangerous substances. Depending on the origin and state of the waste, other codes may be applicable too.
Special precautions	Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

General

IMDG Regulated Marine Pollutant.

ADR

14.1. UN number	UN1993
14.2. UN proper shipping name	FLAMMABLE LIQUID, N.O.S. (N,N Diethylhydroxylamine, Mixture)
14.3. Transport hazard class(es)	
Class	3
Subsidiary risk	-
Tunnel restriction code	(E)
14.4. Packing group	III
14.5. Environmental hazards	Yes
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

RID

14.1. UN number	UN1993
14.2. UN proper shipping name	FLAMMABLE LIQUID, N.O.S. (N,N Diethylhydroxylamine, Mixture)
14.3. Transport hazard class(es)	
Class	3
Subsidiary risk	-
14.4. Packing group	III
14.5. Environmental hazards	Yes
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

ADN

14.1. UN number	UN1993
14.2. UN proper shipping name	FLAMMABLE LIQUID, N.O.S. (N,N Diethylhydroxylamine, Mixture)
14.3. Transport hazard class(es)	
Class	3
Subsidiary risk	-



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14.4. Packing group III
14.5. Environmental hazards Yes
14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IATA

14.1. UN number UN1993
14.2. UN proper shipping name FLAMMABLE LIQUID, N.O.S. (N,N Diethylhydroxylamine, Mixture)
14.3. Transport hazard class(es)
Class 3
Subsidiary risk -
14.4. Packing group III
14.5. Environmental hazards Yes
ERG Code Not available.
14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

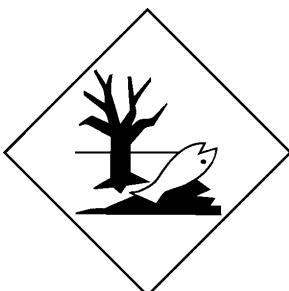
IMDG

14.1. UN number UN1993
14.2. UN proper shipping name FLAMMABLE LIQUID, N.O.S. (N,N Diethylhydroxylamine, Mixture)
14.3. Transport hazard class(es)
Class 3
Subsidiary risk -
14.4. Packing group III
14.5. Environmental hazards
Marine pollutant Yes
EmS F-E, S-E
14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code Not established.

ADN; ADR; IATA; IMDG; RID



Marine pollutant



General information

IMDG Regulated Marine Pollutant.



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SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EU) 2019/1021 On persistent organic pollutants (recast), as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Diethylamine (CAS 109-89-7) 40

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Hydroquinone (CAS 123-31-9)

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Diethylamine (CAS 109-89-7)

Hydroquinone (CAS 123-31-9)

Other regulations

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

National regulations

According to Directive 92/85/EEC as amended, pregnant women should not work with the product, if there is the least risk of exposure.

Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

SECTION 16: Other information

List of abbreviations



SAFETY DATA SHEET

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ADN: European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways.
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
CEN: European Committee for Standardization.
CLP: Classification, Labeling and Packaging REGULATION (EC) No 1272/2008 on classification, labeling and packaging of substances and mixtures.
EC50: Effective Concentration 50%.
IATA: International Air Transport Association.
IBC Code: International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk.
IMDG: International Maritime Dangerous Goods.
LC50: Lethal Concentration 50%.
LD50: Lethal Dose 50%.
MARPOL: International Convention for the Prevention of Pollution from Ships.
NOEL: No observed effect level.
PBT: Persistent, bioaccumulative and toxic.
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.
STEL: Short term exposure limit.
TOC: Total Organic Carbon.
vPvB: Very persistent and very bioaccumulative.
COD: Chemical Oxygen Demand
EC-No: European Commission Number
BOD: Biochemical oxygen demand.

Safety data sheets of raw materials.

The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

References

Information on evaluation method leading to the classification of mixture

Full text of any H-statements not written out in full under Sections 2 to 15

H225 Highly flammable liquid and vapour.
H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H311 Toxic in contact with skin.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H341 Suspected of causing genetic defects.
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.

Revision information

This document has undergone significant changes and should be reviewed in its entirety.

Training information

Follow training instructions when handling this material.

Disclaimer

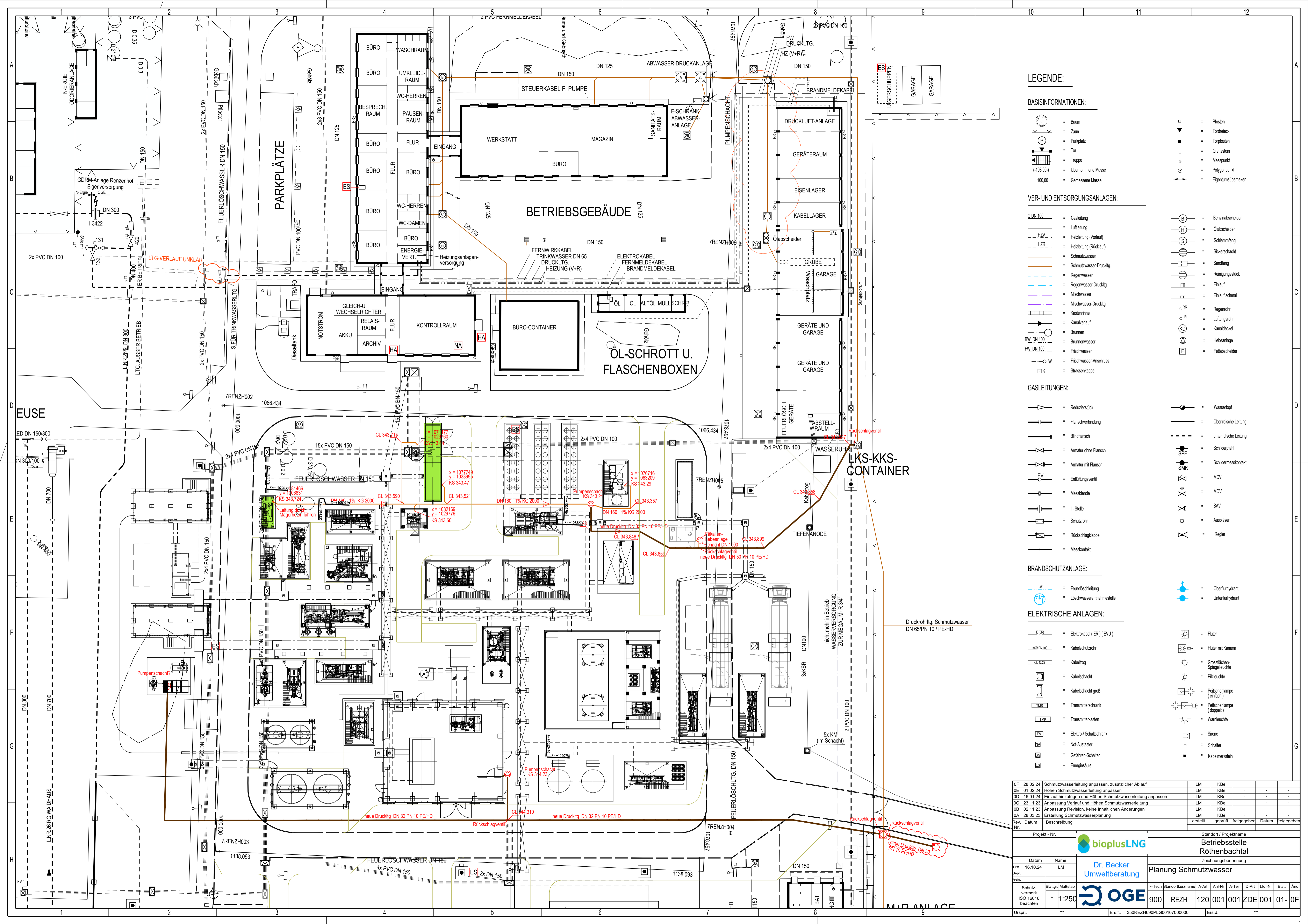
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Based on EC Directive / Regulations

(EC) No 1907/2006 (REACH)
(EU) No 2020/878
(EC) No 1272/2008
(EU) No 1357/2014

Further information

Correction in Section: 2,3,4,5,6,7,8,9,10,11,12,13,15,16



LEGENDE:

- BASISINFORMATIONEN:**
- = Baum
 - = Zaun
 - = Parkplatz
 - = Grenzstein
 - = Treppe
 - = Übernommene Masse (-198.00)
 - = Gemessene Masse (100.00)
 - = Pfosten
 - = Tordreieck
 - = Tor
 - = Messpunkt
 - = Polygonpunkt
 - = Eigentumsüberhaben

VER- UND ENTSORGUNGSANLAGEN:

- G DN 100**
- = Gasleitung
 - = Lüftung
 - = Heizleitung (Vortlauf)
 - = Heizleitung (Rücklauf)
 - = Schmutzwasser
 - = Schmutzwasser-Drucktg.
 - = Regenwasser
 - = Regenwasser-Drucktg.
 - = Mischwasser
 - = Mischwasser-Drucktg.
 - = Kastenrinne
 - = Kanalverlauf
 - = Brunnen
 - = Brunnenwasser
 - = Frischwasser
 - = Frischwasser-Anschluss
 - = Strassenkappe
- BW DN 100**
- = Benzinabscheider
 - = Ölabscheider
 - = Schlammfang
 - = Sickerschicht
 - = Sandfang
 - = Reinigungsstück
 - = Einlauf
 - = Einlauf schmal
 - = Regenrohr
 - = Lüftungsrohr
 - = Kanaldeckel
 - = Hebeanlage
 - = Fettsabscheider

GASLEITUNGEN:

- = Reduzierstück
- = Flanschverbindung
- = Blindflansch
- = Armatur ohne Flansch
- = Armatur mit Flansch
- = Entlüftungsventil
- = Messblende
- = Schutzrohr
- = Rückschlagklappe
- = Messkontakt
- = Wassertopf
- = Oberirdische Leitung
- = unterirdische Leitung
- = Schilderpfahl
- = Schildermesskontakt
- = MCV
- = SAV
- = Ausbläser
- = Ragler

BRANDSCHUTZANLAGE:

- = Feuerlöschleitung
- = Löschwasserentnahmestelle
- = Oberflurhydrant
- = Unterflurhydrant

ELEKTRISCHE ANLAGEN:

- = Elektro Kabel (ER) (EVU)
- = Kabelschutzhohr
- = Kabeltrug
- = Kabelschacht
- = Kabelschacht groß
- = Transmitterschrank
- = Transmitterkasten
- = Elektro-/Schaltschrank
- = Not-Aussteller
- = Gefahren-Schalter
- = Energiesäule
- = Filter
- = Filter mit Kamera
- = Grossflächen-Spiegeluchte
- = Plitzleuchte
- = Peilschenlampe (einfach)
- = Peilschenlampe (doppelt)
- = Wärmleuchte
- = Sirene
- = Schalter
- = Kabelmarkstein

OF 28.02.24	Schmutzwasserleitung anpassen, zusätzlicher Ablauf	LM	KBe						
OE 01.02.24	Höhen Schmutzwasserleitung anpassen	LM	KBe						
OD 16.01.24	Einlauf hinzufügen und Höhen Schmutzwasserleitung anpassen	LM	KBe						
OC 23.11.23	Anpassung Verlauf und Höhen Schmutzwasserleitung	LM	KBe						
OB 02.11.23	Anpassung Revision, keine inhaltlichen Änderungen	LM	KBe						
OA 28.03.23	Erstellung Schmutzwasserplanung	LM	KBe						
Rev	Datum	Beschreibung	erstellt	geprüft	freigegeben	Datum	freigegeben		
Projekt - Nr.		Standort / Projektname							
Datum		Name		Betriebsstelle Röthenbachtal					
Entf.		16.10.24		LM		Planung Schmutzwasser			
Sep									
Freig									
Schutzvermerk		Blatt		Maßstab		F-Tech Standortkurzname A-Art Anl-Nr A-Teil D-Art Lfd.-Nr Blatt And			
ISO 16016 beachten		-		1:250		900 REZH 120 001 001 ZDE 001 01-0F			
Urspr.:				Ers.f.:		350REZH690PLG0010700000		Ers.d.:	