II. ОПИС НА ТЕХНИЧКИТЕ АКТИВНОСТИ

- *Мапа скица на локацијата на инсталацијата со координати на точките на границите на инсталацијата*

Складиштето на компанијата „ЕЗО - ТЕХ“ Доо Скопје, се наоѓа во рамките на еден од погоните на поранешната фабрика Охис, на парцела број 5340/1 во КО Кисела Вода 2 (Слика 1).

Координатите на Инсталацијата (складиштето) на “ЕЗО – ТЕХ” се:

- X:7539855,48 Y:4647027,95
- X:7539807,6 Y:4647056,23
- X:7539818,8 Y:464707,45
- X:7539865,98 Y:4647045,73

Слика 1 Складиште на компанијата “ЕЗО – ТЕХ” ДОО Скопје

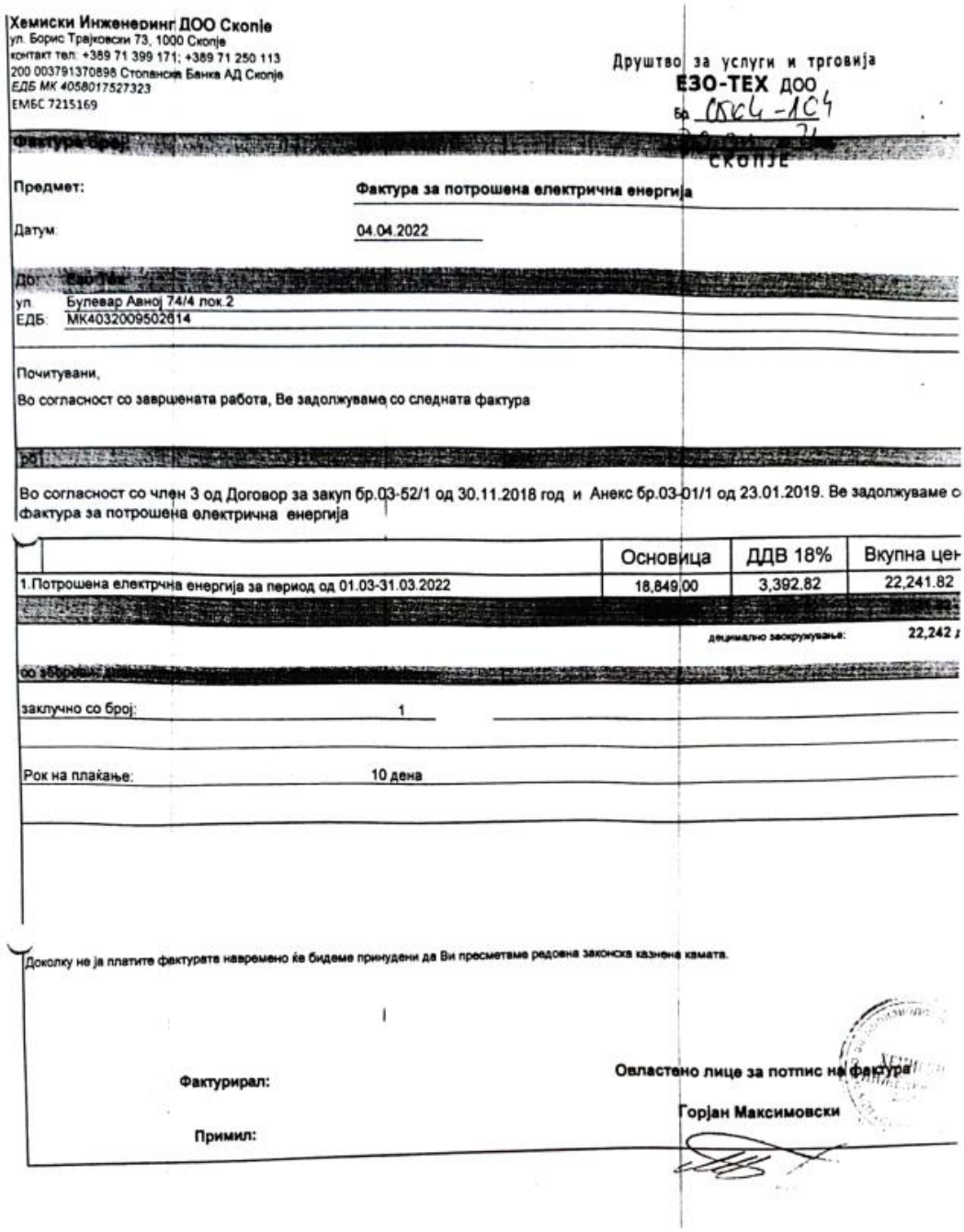
- *Детален опис на каналот за можни испусти како се чисти и колкава количина на отпад се собира во него*

- Висина на каналот 30 cm = 0,30 m
- Должина на каналот 4400 cm = 4,4 m
- Ширина на каналот: 33 cm = 0,33 m
- Каналот до пола висина е исполнет со течност: 15 cm = 0,15 m
- Волумен на течност која може да го собере каналот: 0,436 m^3

Каналот се чисти со исцрпување на течноста со цистерна која е во сопственост на „ЕЗО - ТЕХ“ и истата количина се става во ИБЦ контејнери, потоа се врши испитување на составот на течноста (отпадот) и во зависност од резултатите од анализите и типот на отпад кој ќе се идентификува истиот ќе се предаде на овластена компанија за постапување со таков тип на отпад.

Слика 2 Канал за можни испусти во рамки на складиштето на компанијата “ЕЗО – ТЕХ”

- *Месечна сметка за електрична енергија потрошена од компанијата „ЕЗО - ТЕХ“ Доо Скопје*



Хемиски Инженеринг ДОО Скопје
ул. Борис Трајковски 73, 1000 Скопје
контакт тел: +389 71 399 171; +389 71 250 113
200 003791370898 Стопанска Банка АД Скопје
ЕДБ МК 4058017527323
ЕМБС 7215169

Друштво за услуги и трговија
ЕЗО-ТЕХ ДОО
Бр. 0864-104
СКОПЈЕ

Фактура број:

Предмет: **Фактура за потрошена електрична енергија**

Датум: 04.04.2022

До: [redacted]
ул. Булевар Авној 74/4 лок.2
ЕДБ: МК4032009502614

Почитувани,

Во согласност со завршената работа, Ве задолжуваме со следната фактура

Ро

Во согласност со член 3 од Договор за закуп бр.03-52/1 од 30.11.2018 год и Анекс бр.03-01/1 од 23.01.2019. Ве задолжуваме с фактура за потрошена електрична енергија

	Основица	ДДВ 18%	Вкупна цен
1.Потрошена електрчна енергија за период од 01.03-31.03.2022	18,849.00	3,392.82	22,241.82
		децимално заокружување:	22,242

со з

заклучно со број: 1

Рок на плаќање: 10 дена

Доколку не ја платите фактурата навремено ќе бидеме принудени да Ви пресметаме редовна законска казнена камата.

Фактурирал:

Овластено лице за потпис на фактура

Горјан Максимовски

Примил:

III. УПРАВУВАЊЕ и КОНТРОЛА

- Во компанијата “ЕЗО – ТЕХ” лицето Кица Стојковска е назначена како одговорна за прашањата од животната средина
- Компанијата “ЕЗО – ТЕХ” складиштето го обезбедува со 24 часовен видео надзор со 4 камери (прикажани на Слика 3 и Слика 4) поставени по 2 во внатрешноста и 2 камери во надворешниот дел од објектот

Слика 3 Камери *во внатрешноста на складиштето на “ЕЗО – ТЕХ”*

Слика 4 Камери во надворешниот дел на складиштето на “ЕЗО – ТЕХ”

Компанијата “ЕЗО – ТЕХ” исто така ги користи и услугите на обезбедувањето од фабриката “Охис” која има склучено Договор со компанијата НИКОБ за обезбедување 24/7.

IV. СУРОВИНИ И ПОМОШНИ МАТЕРИЈАЛИ И ЕНЕРГИИ УПОТРЕБЕНИ ИЛИ ПРОИЗВЕДЕНИ ВО ИНСТАЛАЦИЈАТА

- MSDS (безбедносните листи на суровините) се дадени во Прилог 1

- Табела со суровини и помошни материјали кои се користат за одвивање на активностите во складиштето на компанијата "ЕЗО – ТЕХ"

Реф. Бр	**Материјал/ Супстанција[1]**	**CAS[4] Број**	**Категорија на опасност[2]**	Моментално складирана количина (t)	**Годишна употреба** (t)	Р и С фрази[3]
1.	Alkaflock (натриум алуминат - $NaAlO_2$)	1302-42-7	Класа 8	Не се складираат бидејќи се нарачува (од надворешен добавувач) мала количина, во зависност од потребната количина за третман на течниот отпад (останува околу 0,5 kg - 1 kg од секоја нарачана хемикалија на годишно ниво)	0.14	R35, S24/25, 26, 36/37/39,45
2.	Biotol PLUS	/	Не е опасна хемикалија	Не се складираат бидејќи се нарачува (од надворешен добавувач) мала количина, во зависност од потребната количина за третман на течниот отпад (останува околу 0,5 kg - 1 kg од секоја нарачана хемикалија на годишно ниво)	0.16	R 66, S36, S24/25
3.	Biotol PROTECT	/	Не е опасна хемикалија	Не се складираат бидејќи се нарачува (од надворешен добавувач) мала количина, во зависност од потребната количина за третман на течниот отпад (останува околу 0,5 kg - 1 kg од секоја нарачана хемикалија на годишно ниво)	0.16	R 66, S36, S24/25
4.	$FeCl_3$ (железо III хлорид)	7705-08-0	Класа 8	Не се складираат бидејќи се нарачува (од надворешен добавувач) мала количина, во зависност од потребната количина за третман на течниот отпад (останува околу 0,5 kg - 1 kg од секоја	0.21	R 22, R 34, S 26, S 28, S 36, S 45

Реф. Бр	**Материјал/ Супстанција[1]**	**CAS[4] Број**	**Категорија на опасност[2]**	Моментално складирана количина (t)	**Годишна употреба** (t)	P и C фрази[3]
				нарачана хемикалија на годишно ниво)		
5.	NICASAL 51 e	7784-27-2	Класа 5.1	Не се складираат бидејќи се нарачува (од надворешен добавувач) мала количина, во зависност од потребната количина за третман на течниот отпад (останува околу 0,5 kg - 1 kg од секоја нарачана хемикалија на годишно ниво)	0.21	R 8 36/38
6.	Sachtofloc 37.10	/	Класа 8	Не се складираат бидејќи се нарачува (од надворешен добавувач) мала количина, во зависност од потребната количина за третман на течниот отпад (останува околу 0,5 kg - 1 kg од секоја нарачана хемикалија на годишно ниво)	0.14	R35, S24/25, 26, 36/37/39,45
7.	Sachtofloc 39 e	/	Класа 8	Не се складираат бидејќи се нарачува (од надворешен добавувач) мала количина, во зависност од потребната количина за третман на течниот отпад (останува околу 0,5 kg - 1 kg од секоја нарачана хемикалија на годишно ниво)	0.21	R35, S24/25, 26, 36/37/39,45
8.	Sachtofloc 46 e	/	Класа 8	Не се складираат бидејќи се нарачува (од надворешен добавувач) мала количина, во зависност од потребната количина за третман на течниот отпад (останува околу 0,5 kg - 1 kg од секоја нарачана хемикалија на годишно ниво)	0.21	R35, S24/25, 26, 36/37/39,45
9.	Sachtoklar 35	/	Класа 8	Не се складираат бидејќи се нарачува (од надворешен добавувач) мала количина, во зависност од потребната количина за третман на течниот отпад (останува околу 0,5 kg - 1 kg од секоја	0.21	R35, S24/25, 26, 36/37/39,45

Реф. Бр	**Материјал/ Супстанција[1]**	**CAS[4] Број**	**Категорија на опасност[2]**	Моментално складирана количина (t)	**Годишна употреба** (t)	P и C фрази[3]
				нарачана хемикалија на годишно ниво)		
10.	Sachtoklar 39 FE	/	Класа 8	Не се складираат бидејќи се нарачува (од надворешен добавувач) мала количина, во зависност од потребната количина за третман на течниот отпад (останува околу 0,5 kg - 1 kg од секоја нарачана хемикалија на годишно ниво)	0.21	R35, S24/25, 26, 36/37/39,45
11.	Sachtopur e	/	Класа 8	Не се складираат бидејќи се нарачува (од надворешен добавувач) мала количина, во зависност од потребната количина за третман на течниот отпад (останува околу 0,5 kg - 1 kg од секоја нарачана хемикалија на годишно ниво)	0.14	R 34, S 28, S 45, S 7/8
12.	$AlCl_3$ (алуминиум III хлорид)	7446-70-0	Класа 8	Не се складираат бидејќи се нарачува (од надворешен добавувач) мала количина, во зависност од потребната количина за третман на течниот отпад (останува околу 0,5 kg - 1 kg од секоја нарачана хемикалија на годишно ниво)	0.14	R34, S28, S 45, S7/8
13.	Biotol	7446-70-0	Класа 8	Не се складираат бидејќи се нарачува (од надворешен добавувач) мала количина, во зависност од потребната количина за третман на течниот отпад (останува околу 0,5 kg - 1 kg од секоја нарачана хемикалија на годишно ниво)	0.14	R 34, S 28, S 45, S 7/8
14.	Biotol Fresh	/	Не е опасна хемикалија	Не се складираат бидејќи се нарачува (од надворешен добавувач) мала количина, во зависност од потребната количина за третман на течниот отпад (останува околу 0,5 kg - 1 kg од секоја	0.16	R 66, S36, S24/25

Реф. Бр	**Материјал/ Супстанција[1]**	**CAS[4] Број**	**Категорија на опасност[2]**	Моментално складирана количина (t)	**Годишна употреба** (t)	P и C фрази[3]
				нарачана хемикалија на годишно ниво)		
15.	EKOFIX KA E	/	Класа 8	Не се складираат бидејќи се нарачува (од надворешен добавувач) мала количина, во зависност од потребната количина за третман на течниот отпад (останува околу 0,5 kg - 1 kg од секоја нарачана хемикалија на годишно ниво)	0.16	R34, S28, S 45, S7/8
16.	POLYALUCHLORIDE	1327-41-9	Класа 8	Не се складираат бидејќи се нарачува (од надворешен добавувач) мала количина, во зависност од потребната количина за третман на течниот отпад (останува околу 0,5 kg - 1 kg од секоја нарачана хемикалија на годишно ниво)	0.14	R38, S2, S26
17.	Sachtoklar 39 E	1327-41-9	Класа 8	Не се складираат бидејќи се нарачува (од надворешен добавувач) мала количина, во зависност од потребната количина за третман на течниот отпад (останува околу 0,5 kg - 1 kg од секоја нарачана хемикалија на годишно ниво)	0.14	R38, S2, S26
18.	Sachtoklar E	39290-78-3	Класа 8	Не се складираат бидејќи се нарачува (од надворешен добавувач) мала количина, во зависност од потребната количина за третман на течниот отпад (останува околу 0,5 kg - 1 kg од секоја нарачана хемикалија на годишно ниво)	0.14	R41, S23, S26, S28, S37/39
19.	Sachtoklar P E	39290-78-3	Класа 8	Не се складираат бидејќи се нарачува (од надворешен добавувач) мала количина, во зависност од потребната количина за третман на течниот отпад (останува околу 0,5 kg - 1 kg од секоја	0.14	R41, S23, S26, S28, S37/39

Реф. Бр	**Материјал/ Супстанција[1]**	**CAS[4] Број**	**Категорија на опасност[2]**	Моментално складирана количина (t)	**Годишна употреба** (t)	Р и С фрази[3]
				нарачана хемикалија на годишно ниво)		

Во компанијата "ЕЗО – ТЕХ" годишно во просек се трошат 1000 kWh електрична енергија, додека вода не се користи при одвивање на активностите за третман и преработка на отпад.

V. ЦВРСТ И ТЕЧЕН ОТПАД

Видови и количини на создаден отпад во инсталацијата „ЕЗО-ТЕХ"

Реф. бр	Вид на отпад/материјал	Број од Европски от каталог на отпад	Количина		Преработка/ одложување	Метод и локација на одложување
			Количина по месец [тони]	Годишна количина [тони]		
1.	Отпад од транспортни цистерни, складишни резервоари и од миење на буриња (отпад од миење/чистење на цистерната)	16 07 08* отпад што содржи масло	/	1,5	Се собира во посебни контејнери, и времено се складира во инсталацијата	Се предава на овластен постапувач за ваква фракција на отпад (ДТУ "Ауто - Хаус Заковски", Скопје)
2.	Отпад што не е поинаку специфициран (искористени возила од различни видови транспорт, гасови во садови под притисок и отфрлени хемикалии, батерии и акумулатори, и др.)	16 10 01*	/	0,28	Се собира во посебни контејнери, и времено се складира во инсталацијата	Се предава на овластен постапувач за ваква фракција на отпад (ДТУ "Ауто - Хаус Заковски", Скопје)

Реф. бр	Вид на отпад/материјал	Број од Европски от каталог на отпад	Количина		Преработка/ одложување	Метод и локација на одложување
			Количина по месец [тони]	Годишна количина [тони]		
3.	Отпад од апсорбенси, филтерски материјали, платна за бришење и заштитна облека	15 02 02*	/	0,085	Се собира во посебни контејнери, и времено се складира во инсталацијата	Се предава и транспортира на депонија “Дрисла”, со која инсталацијата има склучено договор
4.	Отпад од пакување на хемикалии	15 01 06	/	0,02	Се собира во посебен контејнер и времено се складира во инсталацијата	Се предава и транспортира на депонија “Дрисла”, со која инсталацијата има склучено договор
5.	Шут од градење и рушење (отпад од чистење на складиште)	17 09 04	/	0,07	Се собира во посебен контејнер и времено се складира во инсталацијата	Се предава и транспортира на депонија “Дрисла”, со која инсталацијата има склучено договор
6.	Комунален отпад	20 03 01	/	0,02	Се собира во посебен контејнер и времено се складира во инсталацијата	Се предава и транспортира на депонија “Дрисла”, со која инсталацијата има склучено договор

- *<u>Договор на компанијата “ЕЗО – ТЕХ” со Ауто Хаус Заковски за собирање и превземање на опасен отпад</u>*

Поднесокот е во ре
ДРУШТВО ЗА УСЛУГИ И ТРГОВИЈА
ЕЗО-ТЕХ ДОО
15-03 2019
СКОПЈЕ

03-1503/2019
15.03.19

ДОГОВОР

За Деловно - Техничка соработка,склучен на ден:15.03.2019 г.

Овој Договор се склучува помеѓу:
1.**Ауто-Хаус Заковски Дооел**, со адреса на ул.Герника,бр.80 од Скопје, со матичен број 6535801,даночен број 4044009501764, застапувано од лицето Горанчо Заковски – Управител во понатамошниот текст **ЗАКОВСКИ**
и
2.**ЕЗО-ТЕХ ДОО СКОПЈЕ**, со адреса на ул.Б.Трајковски бр 73, Кисела Вода, 1000 Скопје, со матичен број 6498540, даночен број 4032009502614, застапувано од лицето Предраг Ефтимовски-Управител, во понатамошниот текст **ЕЗО-ТЕХ**.

ПРЕДМЕТ НА ДОГОВОРОТ

Член 1

1.1. Договорот се однесува на вршење услуга- собирање и превземање на опасен отпад од поглавјата (12),(13) и (15) од Листата на видови на отпад, кој произлегува од дејноста на двете договорени страни.

ОБВРСКИ НА ДОГОВОРЕНИТЕ СТРАНИ

Член 2

2.1. ЕЗО-ТЕХ го собира и го предава отпадот на ЗАКОВСКИ.
2.2. Двете страни се договараат кога и во кои случаи ЗАКОВСКИ ќе биде во својство собирач на опасен отпад, ако за тоа има потреба која претходно е договорена помеѓу двете страни.

2.3. Во својата работа двете договорени страни се сложија дека нема да се заобиколуваат меѓусебно и клиентите кои се веќе во договор со другата страна, нема да ги придобиваат директно.

Член 3

3.1. ЕЗО-ТЕХ е должен да го извести поседувачот да направи Собирно место за опасен отпад и истото да биде на место каде нема пристап на невластени лица.
3.2. ЕЗО-ТЕХ е дожен да го извести поседувачот на опасниот отпад да го собира во садови кои ќе бидат поставени на Собирното место за опасен отпад.
3.3. ЕЗО-ТЕХ треба да да го извести поседувачот да се грижи за Собирното место, да го контролира Собирното место да не дозволи истекување,вадење на опасен отпад од садовите или друго несовесно постапување.

Член 4

4.1. Забрането е мешање на други некомпатибилни течни отпади како што се антифриз,глицерин,киселини итн.
4.2. Забрането е мешање на отпадните масла со вода или цврсти отпади.
4.4. Состојбата со опасниот отпад пред превземање треба да биде контролирана од страна на ЕЗО-ТЕХ,за отпадите кои ги договара и превзема ЕЗО-ТЕХ,а за се треба да биде писмено информиран и ЗАКОВСКИ и писмено треба да даде согласност.
4.5. Ако се докаже дека во опасниот отпад има и други течни или цврсти отпади, а за што нема писмена комуникација помеѓу договорените страни, трошоците за анализата,транспортот,складирањето и отстранувањето ги подмирува ЕЗО-ТЕХ.

Член 5

5.1. ЕЗО-ТЕХ е должен да му обезбеди на ЗАКОВСКИ пристап до садовите со опасен отпад,со цел да изврши увид за состојбата на садовите,отпадот во нив итн.

Член 6

6.1. ЕЗО-ТЕХ не смее опасниот отпад да го предава на неовластени лица кои не се опфатени со овој Договор

РОКОВИ

Член 7

7.1. ЕЗО-ТЕХ треба да го извести ЗАКОВСКИ кога капацитетот на Собирното место ќе биде исполнет 80% со опасен отпад.

7.2. За собраната и предадената количина на опасен отпад ќе бидат изготвени соодветни документи спрема Законот за управување со отпадот- Транспортни и Идентификациони формулари , кои ќе бидат заверени од сите 3 инволвирани страни : Поседувач, Собирач/Транспортер и Краен поседувач на отпадот.

Член 8

8.1. Се што не е опфатено со овој Договор ќе се уредува со Анекс на Договорот.

8.2. Цените на услугите ќе се одредуваат преку прифатена Понуда или Анекс на Договорот.

СПОРОВИ

Член 9

9.1. Сите спорови настанати во врска со спроведувањето на овој Договор ќе се решаваат спогодбено, врз основа на добрата деловна практика, доколку тоа е невозможно за спорот решава Основен суд Скопје 1 Скопје.

ЗАВРШНИ ОДРЕДБИ

Член 10

10.1. Двете договорни страни можат да го раскинат овој Договор , доколку една од двете страни не почитува одредбите од Договорот или законските норми.

10.2. Отказниот рок е 30 дена , со писмена изјава, во која двете договорни страни се должни да ги довршат претходно започнатите работи.

Член 11

11.1. Овој Договор се смета за склучен од денот на потпишувањето од двете договорни страни .

11.2. Овој договор стапува во сила после самото склучување.

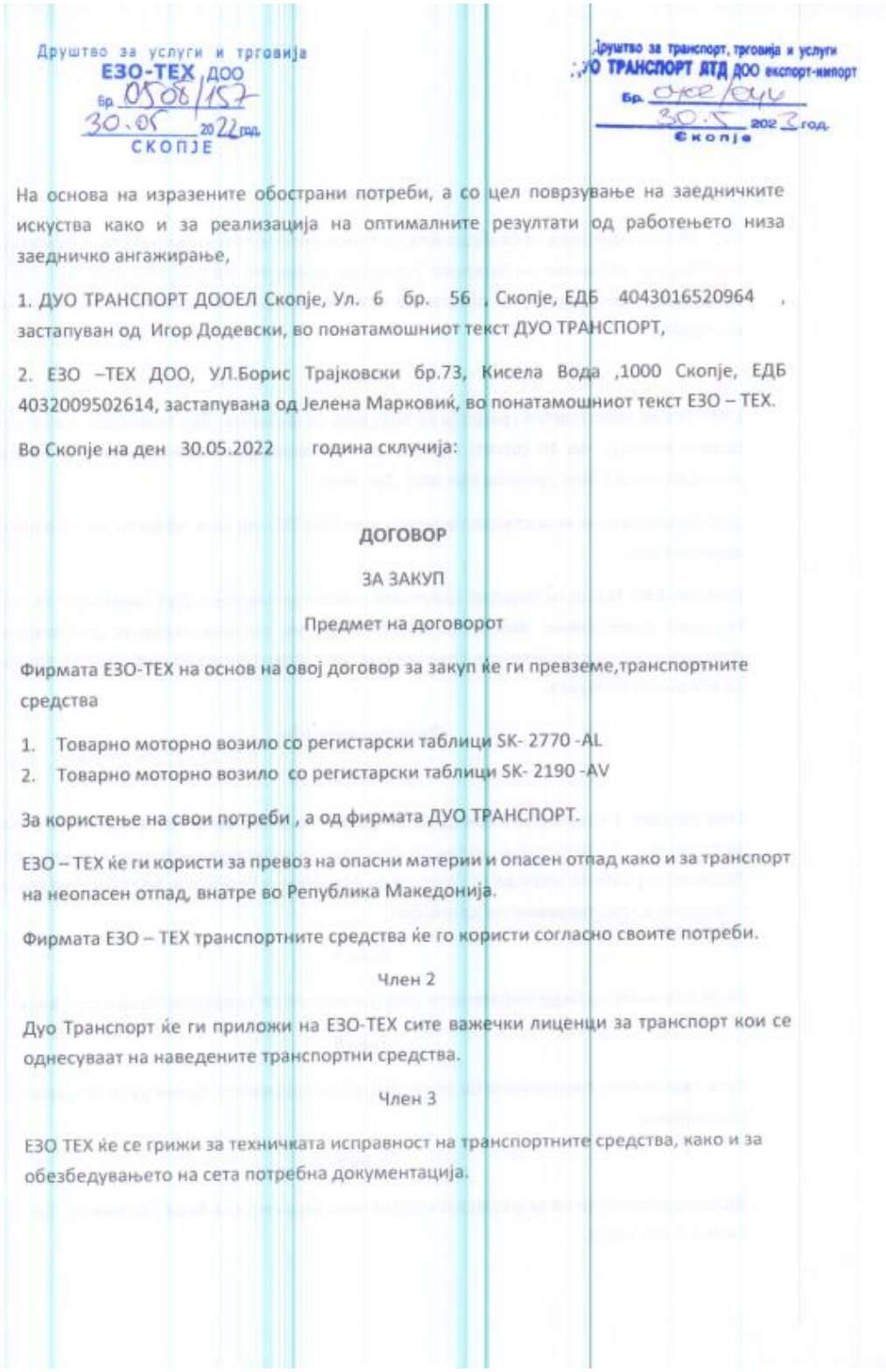
11.3. Овој договор се склучува со рок на важност од една година и доколку договорот не се раскине од една од договорените страни после една година, истиот автоматски се продолжува.

11.4. Овој Договор е склучен во два еднакви примероци, по еден за секоја договорна страна.

За АУТО-ХАУС ЗАКОВСКИ ДООЕЛ

За ЕЗО-ТЕХ ДОО Скопје

- *<u>Договор на компанијата “ЕЗО – ТЕХ” со “ДУО ТРАНСПОРТ” ДООЕЛ за закуп на товарни возила за превоз на опасни материи и опасен отпад, како и за транспорт на неопасен отпад</u>*



Друштво за услуги и трговија
ЕЗО-ТЕХ ДОО
Бр. 0508/157
30.05 2022 год.
СКОПЈЕ

Друштво за транспорт, трговија и услуги
ДУО ТРАНСПОРТ ДТД ДОО експорт-импорт
Бр. 0402/044
30.5 2022 год.
Скопје

На основа на изразените обострани потреби, а со цел поврзување на заедничките искуства како и за реализација на оптималните резултати од работењето низа заедничко ангажирање,

1. ДУО ТРАНСПОРТ ДООЕЛ Скопје, Ул. 6 бр. 56 , Скопје, ЕДБ 4043016520964 , застапуван од Игор Додевски, во понатамошниот текст ДУО ТРАНСПОРТ,

2. ЕЗО –ТЕХ ДОО, УЛ.Борис Трајковски бр.73, Кисела Вода ,1000 Скопје, ЕДБ 4032009502614, застапувана од Јелена Марковиќ, во понатамошниот текст ЕЗО – ТЕХ.

Во Скопје на ден 30.05.2022 година склучија:

ДОГОВОР

ЗА ЗАКУП

Предмет на договорот

Фирмата ЕЗО-ТЕХ на основ на овој договор за закуп ќе ги превземе,транспортните средства

1. Товарно моторно возило со регистарски таблици SK- 2770 -AL
2. Товарно моторно возило со регистарски таблици SK- 2190 -AV

За користење на свои потреби , а од фирмата ДУО ТРАНСПОРТ.

ЕЗО – ТЕХ ќе ги користи за превоз на опасни материи и опасен отпад како и за транспорт на неопасен отпад, внатре во Република Македонија.

Фирмата ЕЗО – ТЕХ транспортните средства ќе го користи согласно своите потреби.

Член 2

Дуо Транспорт ќе ги приложи на ЕЗО-ТЕХ сите важечки лиценци за транспорт кои се однесуваат на наведените транспортни средства.

Член 3

ЕЗО ТЕХ ќе се грижи за техничката исправност на транспортните средства, како и за обезбедувањето на сета потребна документација.

Член 4

ЕЗО –ТЕХ ќе гарантира за безбедноста на транспортот и транспортните опасни материи и отпад, од моментот на започнат утовар,до моментот на завршен истовар, и ќе се придржува кон Законот за превоз на опасни материи во патниот и железничкиот сообраќај.

Член 5

ЕЗО –ТЕХ за транспортни средства се обврзува на фирмата Дуо транспорт во текот на целиот период од 10 (десет) години, да и исплаќа договорена сума која ќе биде договорена со Анекс договор кон овој Договор.

Дуо Транспорт ќе испоставува фактури кон ЕЗО-ТЕХ кој има обврска да ги плати во законски рок.

Доколку ЕЗО-ТЕХ не ги поштува валутните рокови за плаќање, Дуо Транспорт ќе прати писмено известување ,ако и по тоа ЕЗО-ТЕХ не постапи согласно договореното Дуотранспорт ќе пристапи кон реализација на договореното во овој член со примена на извршена клаузула.

Финални одредби

Член 6

Овој договор е склучен за период од 10 (десет) годинии секој од потписниците може да го раскине само писмено,со тоа да отказниот рок изнесува најмалку 1(еден) месец. Започнатите работи мора да се извршат во договорените рокови, без обзир на тоа што е дојдено до раскинување на договорот.

Член 7

За се што нема да биде опфатено со овој договор ќе се склучуваат Анекс договори.

Член 8

Сите евентуални спорови кои би се појавиле, договорените страни ќе ги решаваат споразумно.

Член 9

Доколку споровите не се решаваат споразумно,надлежен ќе биде Основниот Суд Скопје 2 во Скопје.

Член 10

Овој договор се смета за склучен кога ќе го потпишат двете страни. По потпишувањето на Договорот од едната договорена страна, втората договорена страна има рок од 15 дена да го потпише договорот. Во спротивно овој договор нема да биде од важност.

Член 11

Овој договор е составен од 4 (четири) истоветни примероци, по 2 (два) за секоја од договорените страни.

ЕЗО- ТЕХ

Јелена Марковиќ

Дуо Транспорт

Игор Додевски

- *Дозвола од МЖСПП на компанијата "ДУО ТРАНСПОРТ" ДООЕЛ за вршење на дејност собирање и транспортирање на комунален и други видови на неопасен отпад*

РЕПУБЛИКА СЕВЕРНА МАКЕДОНИЈА

МИНИСТЕРСТВО ЗА ЖИВОТНА СРЕДИНА И ПРОСТОРНО ПЛАНИРАЊЕ
MINISTRIA E MJEDISIT JETËSOR DHE PLANIFIKIMIT HAPËSINOR
Бр.-Nr. УП1-31-7/2020
14-02-2020 20___ год.-vit
СКОПЈЕ - SHKUP

МИНИСТЕРСТВО ЗА ЖИВОТНА СРЕДИНА И ПРОСТОРНО ПЛАНИРАЊЕ

Министерството за животна средина и просторно планирање, постапувајќи по барањето за издавање на дозвола за вршење на дејноста собирање и транспортирање на комунален и други видови на неопасен отпад со архивски број УП1-31-7/2020 поднесено од страна на **Друштво за транспорт, трговија и услуги ДУО ТРАНСПОРТ ЛТД ДОО експорт – импорт Скопје**, со седиште на **ул. 6 бр.56 Стајковци, општина Гази Баба**, на ден 29.01.2020 година издаде:

Д О З В О Л А

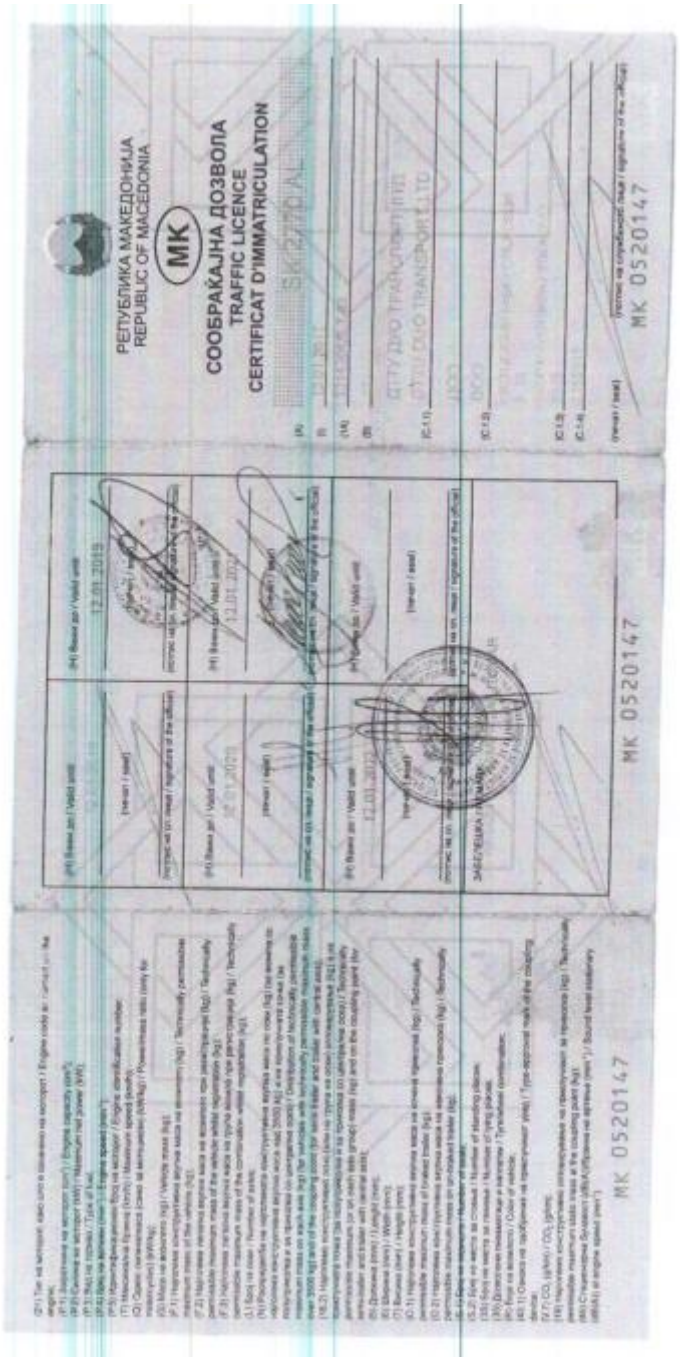
ЗА ВРШЕЊЕ НА ДЕЈНОСТ
СОБИРАЊЕ И ТРАНСПОРТИРАЊЕ НА КОМУНАЛЕН И
ДРУГИ ВИДОВИ НА НЕОПАСЕН ОТПАД

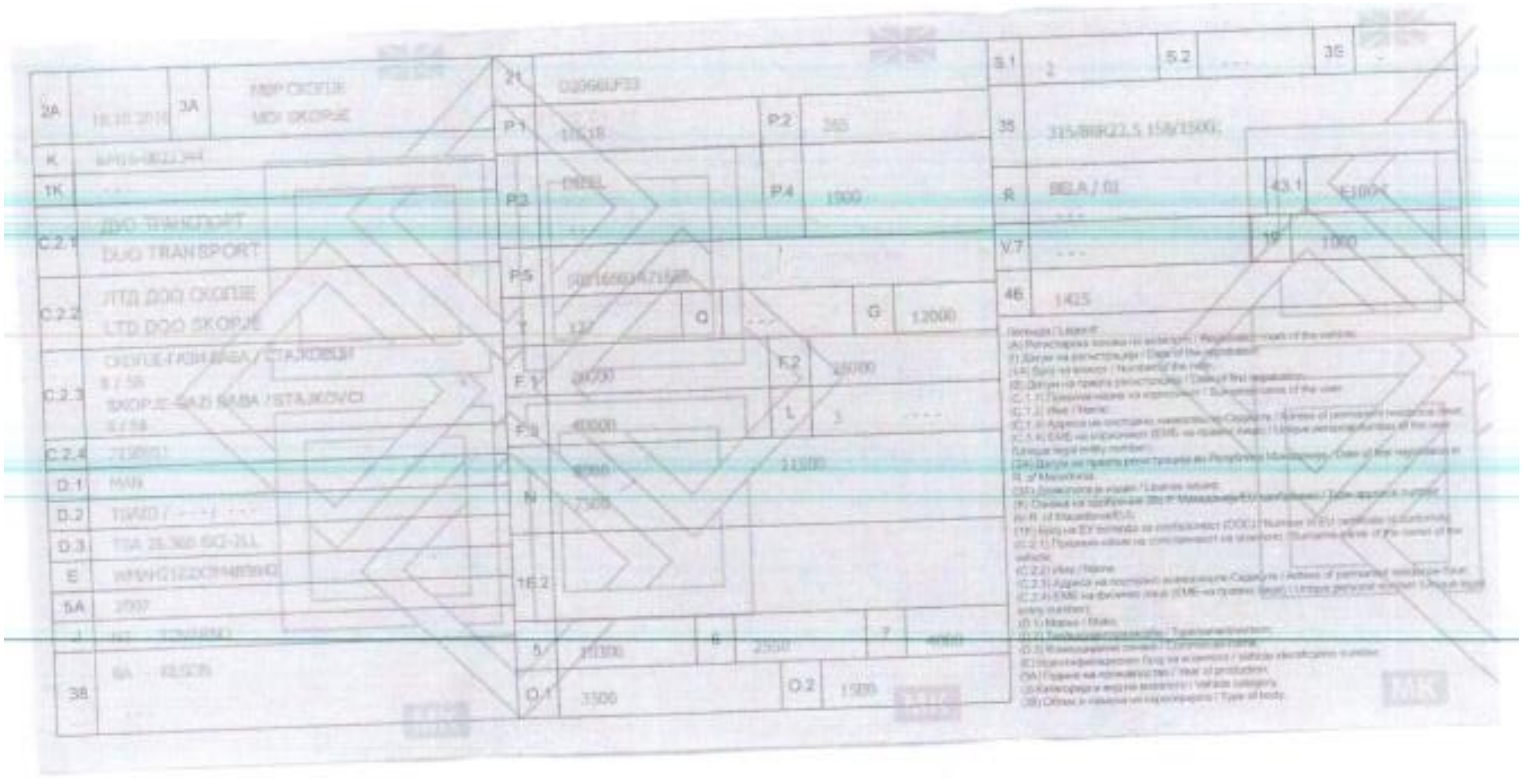
- Носител на дозволата: **Друштво за транспорт, трговија и услуги ДУО ТРАНСПОРТ ЛТД ДОО експорт – импорт Скопје**
- Седиште: Ул. 6 бр.56 СТАЈКОВЦИ, општина ГАЗИ БАБА
- Матичен број: 7150911
- Даночен број: 4043016520964
- Евидентен број на дозволата: 80 од 29.01.2020 година
- Датум на издавање на дозволата 29.01.2020 година
- Важење на дозволата до 29.01.2025 година

М.П.

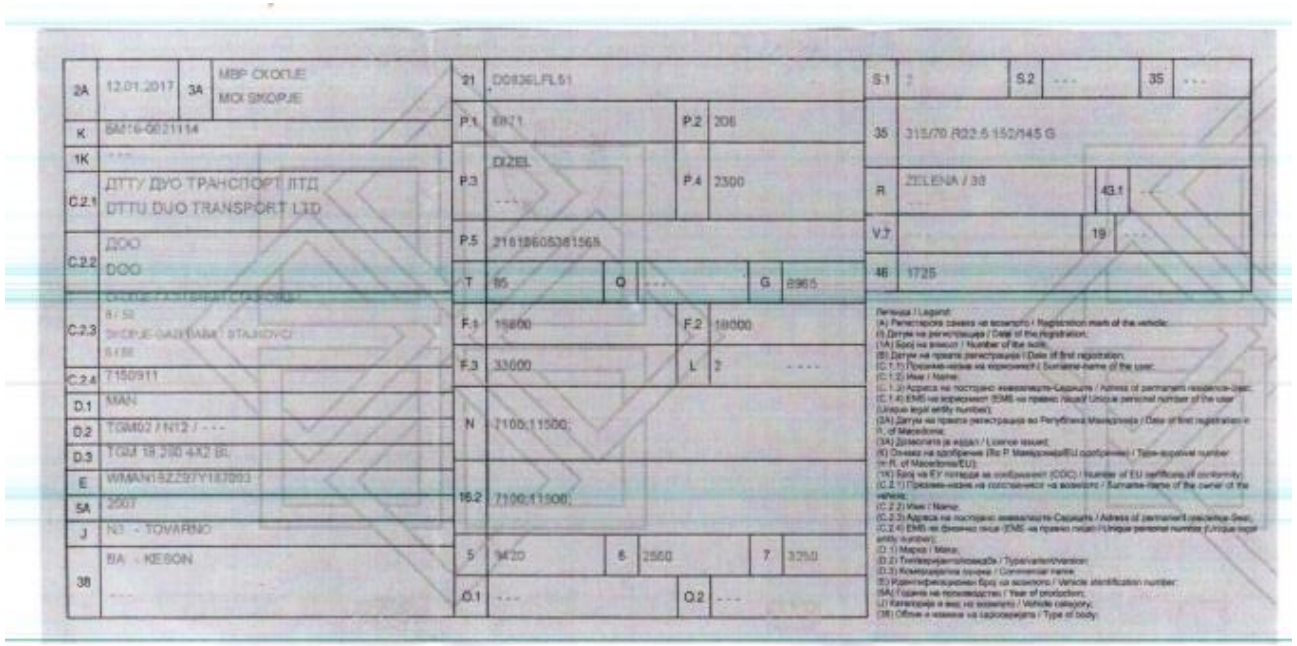
МИНИСТЕР
Naser Nuredini

- *<u>Сообраќајни дозвола за товарните возила на компанијата “ДУО ТРАНСПОРТ” со кои ќе врши транспортирање на комунален и други видови на неопасен отпад за потребите на компанијата “ЕЗО – ТЕХ”</u>*






РЕПУБЛИКА МАКЕДОНИЈА
REPUBLIC OF MACEDONIA
MK
СООБРАЌАЈНА ДОЗВОЛА
TRAFFIC LICENCE
CERTIFICAT D'IMMATRICULATION
SK 2190 AV
ДУО ТРАНСПОРТ
DUO TRANSPORT
ЛТД ДОО СКОПЈЕ
LTD DOO SKOPJE
ЗАБЕЛЕШКА / REMARK:
MK 1199147
MK 1199147
MK 1199147



2A	12.01.2017	3A	МВР СКОПЈЕ MOI SKOPJE	21	DD836LFL51				S.1		S.2		35	
K	BM16-0021114			P.1	6871	P.2	206		35	315/70 R22.5 152/145 G				
1K				P.3	DIZEL	P.4	2300		R	ZELENA / 38		43.1		
C.2.1	ДТТУ ДУО ТРАНСПОРТ ЛТД DTTU DUO TRANSPORT LTD			P.5	21618605381565				V.7			19		
C.2.2	ДОО DOO			T	85	Q		G	8965	46	1725			
C.2.3	[illegible]			F.1	15800	F.2	18000							
C.2.4	7150911			F.3	33600	L	2							
D.1	MAN			N	7100;11500;									
D.2	TGM02 / NT2 / - - -			16.2	7100;11500;									
D.3	TGM 18.250 4X2 BL													
E	WMAN16ZZ97Y187993			5	3420	6	2560	7	3250					
5A	2007			O.1		O.2								
J	N3 - TOVARNO													
38	BA - KESON													

VII. ЕМИСИИ ВО ПОВРШИНСКИ ВОДИ И КАНАЛИЗАЦИЈА

- Проценето годишно количество на емисии на пречистени отпадни води од инсталацијата“ЕЗО – ТЕХ”, изнесува од 80 до 100 m^3 кои ќе се испуштаат во фекалната пумпна станица “Горно Лисиче”.

XII. ПРОГРАМА ЗА ПОДОБРУВАЊЕ

ПРОГРАМА ЗА ПОДОБРУВАЊЕ		
Ознака	**Мерка**	**Датум на завршување**
1.	Активност бр. 1 Опис на активноста: **Озеленување на просторот околу објектот** Предвидена дата за почеток на реализацијата: декември 2023 Вредност на инвестицијата: 22.000,00 денари	Декември 2024
2.	Активност бр. 2 Опис на активноста: **Обуки на вработените во областа на заштита на животната средина** Предвидена дата за почеток на реализацијата: Јули 2022 Вредност на инвестицијата: 246.000,00 денари	Континуирано
3.	Активност бр. 3 Опис на активноста: **Набавка на возило** Предвидена дата за почеток на реализацијата: Јули 2022	Декември 2023

ПРОГРАМА ЗА ПОДОБРУВАЊЕ		
Ознака	**Мерка**	**Датум на завршување**
	Вредност на инвестицијата: 923.000,00 денари	
4.	Активност бр. 4 Опис на активноста: **Ажурирање на системот ISO 14001:2015** Предвидена дата за почеток на реализацијата: Јуни 2022 Вредност на инвестицијата: 95.325,00 денари	Декември 2022

XIV. ИЗЈАВА

XVI ИЗЈАВА

Со оваа изјава поднесувам барање за дозвола, во согласност со одредбите на Законот за животна средина (Сл. Весник на РСМ бр. 53/05, 81/05, 24/07, 159/08, 83/09, 48/10, 124/10, 51/11, 123/12, 93/13, 187/13, 42/14, 44/15 129/15, 192/15, 39/16, 99/18) и регулативите направени за таа цел.

Потврдувам дека информациите дадени во ова барање се вистинити, точни и комплетни.

Немам никаква забелешка на одредбите од Министерството за животна средина и просторно планирање или на локалните власти за копирање на барањето или на негови делови за потребите на друго лице.

Потпишано од : ____________ **Датум :** 3. 6. 2022
(во името на организацијата)

Име на потписникот : Јелена Марковиќ

Позиција во организацијата : Управител

Печат на компанијата:

Прилог 1 MSDS (безбедносните листи на суровините) кои се користат во складиштето на компанијата “ЕЗО – ТЕХ”

Прилог 1 MSDS (Безбедносна листа) за Aluminium chloride hydroxide sulfate (Sachtoklar)

SOLVO ltd

MATERIAL SAFETY DATA SHEET

Aluminum chloride hydroxide sulfate

According to Regulation (EC) 2015 /830

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

1.1 Product identifier	
Substance name	Aluminum chloride hydroxide sulfate
Trade name	CFS, CFS10Al, PACS
IUPAC name	Aluminium hydroxychlorosulphate
EC#	254-400-7
CAS#	39290-78-3
Molecular formula	$Al_2O_3.M.HCl.M_2.H_2SO_4.zH_2O$; or Al(OH)aClb(SO4)c ; where molar ratio M= HCl/Al_2O_3; M_2= H_2SO_4/Al_2O_3; z= 4 to 24; a= 3-M/2-M_2 Basicity= a/3*100% =73 to 83 %
This substance is not classified according to Annex I of Directive 67/548/EEC and Annex VI of Regulation (EC) No 1272/2008	
REACH reference number	**01-2119972943-24-0000**
Reference number of C&L Notification	**02-2119639710-41-0000**

1.2 Relevant identified uses of the substance and uses advised against	
Identified uses	Treatment of surface water for the production of drinking water or industrial use water. Treatment of industrial waste waters coming notably from iron and steel, papermaking, petroleum and chemical industries. Separation of suspended solids in process water to recycle them. Other uses: cosmetics, washing agent and disinfectants, in photography, textile
Uses advised against	none

1.3 Details of the company	
Manufacturer	SOLVO Ltd 1784, Mladosr 1-13-6-43, Sofia, Republic of Bulgaria tel. +359 28770281 (working time only) e-mail: office@solvobg.com
Responsible person	Hristo Dobrev tel.(mobile): +359 899149953
1.4 Emergency telephone number	
	+359 112 (twenty-four-hour)

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance	
Aluminum chloride hydroxide sulfate	
Substance classification according to Regulation (EC) No 1272/2008 [CLP/GHS] (self-classification)	
Hazard Class and Category Code	Acute Tox. - conclusive but not sufficient for classification. Eye Irrit. 1
Hazard Statement	H318 H290
Substance classification according to Directive 67/548/ EEC	
Hazard symbol	Xi
Risk phrases	R41 - Risk of serious damage to eyes
Safety advice appearing	S23, S26, S28, S37/39
Additional information	
See section 16 for full text of R- H-phrases	
Human Heath effects	
Inhalation	Large doses may cause dryness of the mouth and respiratory disorder.
Eyes	Large doses may cause lachrymation (tears), heating and conjunctivitis.
Skin	Single exposure will not produce irritation. Prolonged exposure in some instances may cause dermatitis to develop.
Ingestion	Causes irritation of the gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhea.
2.2 Label elements	
Product identifier	Aluminum chloride hydroxide sulfate No index number in CLP Annex VI
2.3 _Other hazards	
	Aluminum chloride hydroxide sulfate is neither a PBT nor a vPvB substance.
Hazard pictograms	GHS05: corrosion 
Signal word	Warning
Hazard statements	H318: Causes serious eye damage; H290: May be corrosive to metals
Precautionary statements	P261: Avoid breathing dust/fume/gas/mist/vapours/spray. P264: Wash... thoroughly after handling. (Wash hands thoroughly after handling.) P280: Wear protective gloves/protective clothing/eye protection/face protection. (P280: Wear protective gloves/eye protection/face protection.) P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER or doctor/physician. P406: Store in corrosive resistant/... container with a resistant inner liner. (Store in corrosive resistant container with a resistant inner liner.)

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Constituent			
Chemical name	EC #	Remarks	Concentration range % (w/w)
Aluminum chloride hydroxide sulfate (CFS)	254-400-7	$Al(OH)_{2.34}Cl_{0.5}(SO4)_{0.08}$	>= 80.0 — <= 95.0
3.2 Impurity	Impurity is relevant for C&L of the substance.		> 1.0E-4 — < 0.1
Impurity of heavy metals e.g. As, Cr, Pb, Se		Standard BDS EN 883: 2005	< 0.1

4. FIRST AID MEASURES

4.1. **Description of first aid measures**	
General information	No known delayed effects. Consult a physician for all exposures except for minor instances.
4.2. Most important symptoms and effects, both acute and delayed	
In case of inhalation	Remove source of dust or move person to fresh air. Get medical attention immediately.
In case of eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
In case of skin contact	Wash affected area immediately with plenty of water. Remove contaminated clothing.
In case of ingestion	Never give anything by mouth to an unconscious person. Wash mouth with water and drink copious quantities of water. Do not induce vomiting. Seek medical advice immediately
Information to physician	Treat symptomatically and supportively.
First aid arsenal	Universal medical kit with a set of drugs (in consultation with the medical department of the enterprise).
4.3 Indication of any immediate medical attention and special treatment needed	
	Immediate first aid attention is not expected

5. FIREFIGHTING MEASURES

5.1. Extinguishing media	
Suitable extinguishing media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Using extinguishing media depends on fire hazard/explosion characteristics of combustibles in area.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams in case of large fire.
5.2. Special hazards arising from the substance.	
Hazardous combustion products	Non-flammable, it does not sustain combustion. Possibility of thermal decomposition to form alumina and hydrogen chloride and sulfur oxides.

Special protective equipment for fire-fighters	Wear full protective clothing and NIOSH-approved self-contained breathing apparatus in case of large fire.
Flammable properties	Non-flammable, non-explosive, see section 9.
5.3 Advice for fire-fighters	
During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Substance is noncombustible.	

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures	
Personal precautions	Wear appropriate personal protective equipment as specified in Section 8
Avoid dust formation. Avoid inhaling dust. Ensure adequate ventilation. Do not touch or walk through spilled material. ls and place in a suitable container for reclamation or disposal, using a method that does not generate dust. Ventilate area of leak or spill. Keep unauthorized personnel away.	
6.2. Environmental precautions	
Do not allow product to reach sewage system or any watercourse. Inform respective authorities in case of seepage into watercourse or sewage system. Dilute with plenty of water. Do not allow to enter sewers/ surface or ground water. Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.	
6.3 Methods and material for containment and cleaning up	
Sweep or vacuum up and place in an appropriate closed container. Avoid generating dust. Cover large powder spill with plastic sheet or tarp to minimize spreading. Clean up residual material by washing area with water and detergent. Collect washings for disposal. If spilled: collect in dry form into the lockable-labeled container. The solutions and melts are covered with sand, ground or some sorbing agent, and then the mixture should be collected and put into the lockable-labeled container for further use in production or landfill. Aerate room afterwards and wash release area.	
6.4 Reference to other sections	
Information about personal precautions - see Section 8. Information about waste disposal - see Section 13.	

7. HANDLING AND STORAGE

7.1. Precautions for safe handling	
Precautions for safe handling	Avoid excessive generation of dust Avoid direct or prolonged contact with skin and eyes. Do not ingest.
Fire preventions	None, as the product has no flammable properties. See Section 5.
Aerosol and dust generation preventions	Use local exhaust ventilation or other appropriate engineering controls to maintain dust exposures below occupational exposure limit.

Electrostatics prevention	As a matter of good practice take measures to prevent the build up of electrostatic charge, such as ensuring all equipment is electrically grounded.
Safe transporting	Adhere to the rules on the transport of goods, which operate for the appropriate type of transport. Do not violate the integrity of container. During loading works execute instructions and rules for the appropriate works.
Advice on general occupational hygiene	Do not eat, drink or smoke in work areas. Wash hands after use, remove contaminated clothing and protective equipment before entering eating areas.
7.2. Conditions for safe storage, including any incompatibilities	
Technical measures and storage conditions	Store in manufacturer's package in cool and dry area where it is safe from contamination and exposure to atmospheric precipitations (rain, snow) and subsoil waters. Store away from incompatible materials (see section 10).
Packaging materials	Package should exclude moisture penetration and guarantee the safety of the product during transportation and storage.
Requirements for storage rooms and vessels	Special requirements for storage structures are not established. The product is to be stored at room temperature and average humidity environment.
7.3. Specific end use(s)	
None	

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters	
Occupational exposure limits	
Aluminium salts, soluble	Limit value - Eight hours - 2 mg/m3 (inhalable aerosol)
8.2 Exposure controls	
Occupational exposure controls	
Appropriate engineering controls	Running drinkable water must be supplied to the production facilities. Storage of food and eating in the substance processing area are forbidden. Handling systems should preferably be enclosed or suitable ventilation installed to maintain atmospheric dust below the OES, if not wear suitable protective equipment.
Respiratory protection	Use dust respirator according to the EN149 equipped with the dust recovery filter according to the EN 143.
Eye/face protection	Wear dust-proof goggles according to the EN166, tight fitting goggles with side shields, or wide vision full goggles. Do not wear contact lenses when handling this product. It is also advisable to have individual pocket eyewash.
Skin protection	Use protective clothing fully covering skin, full length pants, long sleeved overalls with close fittings at openings. Footwear resistant to caustics, and avoiding dust penetration

General hygiene considerations	Emergency eyewash and safety shower should be in close proximity as a matter of good practice. Wash hands and face thoroughly with mild soap before eating and drinking. Wear clean, dry personal protective equipment. Barrier cream can be used if necessary. If heavily exposed daily, employees must shower, and if necessary use a barrier cream to protect exposed skin, particularly neck, face and wrists.
Environmental exposure controls	
Measures to prevent exposure	All ventilation systems should be filtered before discharge to atmosphere. The product won't produce toxic compounds in air and wastewaters in the presence of other substances or agents. Provided that all necessary sanitary rules for transportation and storage are adhered, the possibility of environmental pollution is eliminated. The substance half-life - 30-7 days.
Consumer exposure controls	
Measures related to consumer uses of the substance	ional measures are not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties	
Appearance	Clear to turbid liquid or solid granules max sized 20 mm.
Odour	Odorless
Odour threshold	Not applicable
Initial boiling point/range (°C)	103 to 105°C
Freezing point (°C)	-3 °C (10%Al) ; -18°C (3,7%Al)
Viscosity	3 mPa.s ÷ 10 mPa.s (5,3 % Al).
Density	1.3 g/cm3 (10%Al); 1,12 g/cm3 (5,3 % Al)
Flammability	not applicable
Water solubility	Complete

10. STABILITY AND REACTIVITY

10.1 Reactivity	Not reactive under regular storage and use conditions.
10.2 Chemical stability	The product appears to be stable under normal use and recommended storage conditions. The substance does not react with its container.
10.3 Possibility of hazardous reactions	Hazardous polymerization does not occur.
10.4 Conditions to avoid	Will react with sulphates of alkali metals, acids and alkalis. At conditions of humidity the material provokes corrosion of iron and its alloys, aluminium and steel. Reacts with water with sulphuric acid formation, including release of heat. May corrode metals in the presence of moisture.
10.5 Incompatible materials	Incompatibility with the following materials: strong oxidizing agents (for example: chlorine, perchlorates, peroxides); strong bases (for example: sodium hydroxide). Materials to avoid: Strong oxidizing agents.
10.6 Hazardous decomposition products	

	Thermal decomposition: Aluminum chloride hydroxide sulfate begins to liberate water at 90 °C. Complete dehydration above 350 °C. Decomposition products: Hazardous decomposition products formed under fire conditions: Hydrogen Chloride, Sulphur oxides, Aluminum oxide

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects.					
Toxicokinetics, metabolism and distribution					
Non-human toxicological data					
Reason: study scientifically unjustified Justification: Substance is hydrolytically unstable-rapid hydrolysis and precipitation. Dissolved aluminum is less than 0.01 to 0.1 mg /L					
Human toxicological data	No information is available.				
Acute toxicity					
According to an acute oral toxicity test conducted with aluminium sulphate it can be stated that the substances shows low orally toxic characteristics. The oral LD50 in mouse was determined to be 6200 mg/kg body weight or 980 mg Al/mg bw. LD50 Rat oral >5000 mg/kg bw /Hydrated aluminum sulfate ($Al_2(SO_4)_3$, $14.3H_2O$)/ **Practically Non-toxic.** (Method OECD Guideline 401,402,403).					
Irritation/Corrosion	Skin	Not irritating. No epidermal and pathological changes and dermal reactions were observed with aluminium sulphate treatment up to 632.6 mg/kg bw. (OECD Guideline 404). Aluminium sulphate has a slightly corrosive effect in presence of moisture.			
Respiratory or skin sensitization	Eye	The substance is classified as "irritating to eyes".			
	Respiratory tract	No information available: not required. Small doses won't produce negative effects. Large doses may cause gastro enteric upset.			
	Respiratory sensitizing. Human information No relevant information available Not skin sensitizing. Reason: study scientifically unjustified.				
Germ cell mutagenicity	Negative. Negative aluminium sulfate show negative result of micronuclei in the bone marrow in vivo up to the test concentration of 250 mg/kg bw. Negative aluminium sulfate show negative result in micronuclei (MN) test in vitro up to the test concentration of 0.5 mg/kg bw, whereas at 1, 2 and 4 mg/kg bw show minimal effects				
Carcinogenicity	Negative. In accordance with column 2 of REACH Annex X, no carcinogenicity study needs to be proposed as aluminium sulphate is not genotoxic.				
Toxicity for reproduction	Human information No relevant information available				
Repeated dose toxicity					
Exposure	Value		Exposure time period	Species	Method
oral	NOAEL = 342 mg/kg bw/day		subchronic	rat	OECD Guideline 407

12. ECOLOGICAL INFORMATION

12.1. Toxicity			
Aquatic toxicity	**Results**	**Remarks**	**Reference**
Short-term effects on fish *Salmo gairdneri (new name: Oncorhynchus mykiss)* freshwater static 96 hour static test	LC50 (96 h): 36.6 mg/L test mat. (meas. (not specified)) based on: mortality	2 (reliable with restrictions) key study read-across from supporting substance (structural analogue or surrogate) **Test material (Aluminium chloride): $AlCl_3$**	Call et al. (1984)
Short-term toxicity to aquatic invertebrates *Daphnia magna* freshwater static USEPA/600/4-90/027F ISO 6341 15 (Water quality - Determination of the Inhibition of the Mobility of Daphnia magna Straus (Cladocera, Crustacea))	EC50 (24 h): 782 µg/L dissolved (aluminium) (nominal) based on: mobility	read-across from supporting substance (structural analogue or surrogate) **Test material (EC number): 233-135-0**	Guida et al. (2004)

12.2 Persistence and degradability		
Abiotic Degradation		Remark
Half time	Method	In accordance with REACH Annex XI, testing may be omitted if testing does not appear scientifically necessary. Simple inorganic salts are not susceptible to photodegradation.
Biodegradation		When hydrolyzed Aluminum chloride hydroxide sulfate forms aluminium hydroxide precipitate and a dilute hydrochloric and sulfuric acid solution.

12.3 Bioaccumulative potential
Simple inorganic salts with high aqueous solubility will exist in a dissociated form in an aqueous solution. Such a substance has a low potential for bioaccumulation. Cumulation: weak.
12.4 Mobility in soil
As inorganic compounds, traditional degradation studies are not applicable. Due to the water solubility and the ionic nature, the substances are not expected to adsorb or bioaccumulate, water is the main target compartment, and the substance will not volatilize from soil. The substance won't transform in ambient medium.
12.5 Results of PBT and vPvB assessment
The substance is not PBT or vPvB.
12.6 Other adverse effects
None

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods	
Appropriate disposal / Product	Waste disposal should be in strict correspondence with local and national laws and regulations.
Waste codes / waste designations according to EWC / AVV	None, waste is not classified as hazardous according to Commission Decision 2000/532/EC.

Appropriate disposal /Packaging	Dispose of container and unused contents in accordance with local and national requirements.

14. TRANSPORT INFORMATION

14.1. UN number	Not applicable
14.2. UN proper shipping name	Not applicable.
14.3. Transport hazard class(es)	Not applicable. Not classified as hazardous for transport. Not subject to transport regulations.
14.4. Packing group	Not applicable.
14.5. Environmental hazards	Not applicable.
14.6. Special precautions for user	Avoid any release of dust during transportation.
14.7 Transport in bulk according to Annex II of MARPOL73/78 and the	Not applicable.
14.8 Additional information	The product is transported by railway (RID), road (ADR), and sea (IMDG) transport. The cargo is classified as non-hazardous in compliance with the international rules of carriage. Obligatory mark «Keep dry».

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the substance EU regulation
This product is according to: Directive 67/548/EC Directive 1999/45/EC, Regulation (EC) No 1272/2008

16. OTHER INFORMATION

Relevant R- , H-, P-, EUH-phrases
Hazard symbol: Xi: Irritant R - phrases: R41 - Risk of serious damage to eyes S - phrases: S23: Do not breathe gas/fumes/vapour/spray *(appropriate wording to be specified by the manufacturer)* S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice S28: After contact with skin, wash immediately with plenty of water S37/39: Wear suitable gloves and eye/face protection Hazard Statement: H290: May be corrosive to metals H318: Causes serious eye damage. Category Code: Eye Irrit. 1 - Eye irritation category 1
Abbreviation
LD50 - lethal dose LC50 - lethal concentration EC50 - half maximal effective concentration NOAEL - no observed adverse effect level PBT or vPvB - persistent, bioaccumulative and toxic or very persistent very bioaccumulative.

Date: 18.02.2016 *Version: 12* *Replaces version: 11*

Прилог 2 MSDS (Безбедносна листа) Aluminium chloride

ThermoFisher SCIENTIFIC

SAFETY DATA SHEET

Creation Date 10-Sep-2010 **Revision Date** 24-Dec-2021 **Revision Number** 7

1. Identification

Product Name Aluminium chloride

Cat No. : AC217460000; AC217460025; AC217460050; AC217461000; AC217465000

CAS No 7446-70-0
Synonyms Aluminium trichloride

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/Irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word
Danger

Hazard Statements
Causes severe skin burns and eye damage

May cause respiratory irritation

Precautionary Statements
Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Response
Immediately call a POISON CENTER or doctor/physician
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Ingestion
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Reacts violently with water

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Aluminum chloride	7446-70-0	>95

4. First-aid measures

General Advice
Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.

Skin Contact
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.

Inhalation
Remove to fresh air. If not breathing, give artificial respiration. Call a physician or poison control center immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Ingestion
Immediate medical attention is required. Do NOT induce vomiting. Drink plenty of water.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media CO_2, dry chemical, dry sand, alcohol-resistant foam.

Unsuitable Extinguishing Media DO NOT USE WATER

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
The product causes burns of eyes, skin and mucous membranes. Reacts violently with water.

Hazardous Combustion Products
Hydrogen chloride. Hydrogen chloride gas.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
3	0	2	W

6. Accidental release measures

Personal Precautions Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing.

Environmental Precautions Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Do not expose spill to water.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe dust. Do not ingest. If swallowed then seek immediate medical assistance. Do not allow contact with water. Handle under an inert atmosphere.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep away from water or moist air. Do not store in metal containers. Store under an inert atmosphere. Protect from moisture. Incompatible Materials. Water. Strong oxidizing agents. Alkali metals. Strong bases. Metals.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Aluminum chloride		(Vacated) TWA: 2 mg/m³	TWA: 2 mg/m³	

Legend

***OSHA** - Occupational Safety and Health Administration*
***NIOSH IDLH:** NIOSH - National Institute for Occupational Safety and Health*

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Yellow
Odor	pungent
Odor Threshold	No information available
pH	2.4 100 g/L aq.sol
Melting Point/Range	194 °C / 381.2 °F
Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	2.440
Solubility	Water reactive
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	Al Cl3
Molecular Weight	133.34

10. Stability and reactivity

Reactive Hazard Yes

Stability Stable under normal conditions.

Conditions to Avoid Excess heat. Incompatible products. Exposure to moist air or water. Exposure to moisture.

Incompatible Materials Water, Strong oxidizing agents, Alkali metals, Strong bases, Metals

Hazardous Decomposition Products Hydrogen chloride, Hydrogen chloride gas

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing. Reacts violently with water.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Aluminum chloride	LD50 = 3470 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

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

Irritation Causes burns by all exposure routes

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Aluminum chloride	7446-70-0	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

The product contains following substances which are hazardous for the environment. Contains a substance which is:. Toxic to aquatic organisms. Reacts with water so no ecotoxicity data for the substance is available.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Aluminum chloride	Not listed	Gambusia affinis: LC50=27.1 mg/L 97h	Not listed	EC50: 3.9 mg/L 48h EC50: 27.3 mg/L 48h

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT
- **UN-No** UN1726
- **Proper Shipping Name** ALUMINUM CHLORIDE, ANHYDROUS
- **Hazard Class** 8
- **Packing Group** II

TDG
- **UN-No** UN1726
- **Proper Shipping Name** ALUMINUM CHLORIDE, ANHYDROUS
- **Hazard Class** 8
- **Packing Group** II

IATA
- **UN-No** UN1726
- **Proper Shipping Name** ALUMINIUM CHLORIDE, ANHYDROUS
- **Hazard Class** 8
- **Packing Group** II

IMDG/IMO
- **UN-No** UN1726
- **Proper Shipping Name** ALUMINIUM CHLORIDE, ANHYDROUS
- **Hazard Class** 8
- **Packing Group** II

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Aluminum chloride	7446-70-0	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Aluminum chloride	7446-70-0	X	-	231-208-1	X	X	X	X	X	KE-01045

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Aluminum chloride	X	X	X	-	X

U.S. Department of Transportation
Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product contains the following DHS chemicals:
Legend - STQs = Screening Threshold Quantities, APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard
Aluminum chloride	APA

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Aluminum chloride	-	Use restricted. See item 75. (see link for restriction details)	-

https://echa.europa.eu/substances-restricted-under-reach

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

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Aluminum chloride	7446-70-0	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Aluminum chloride	7446-70-0	Not applicable	Not applicable	Not applicable	Not applicable

16. Other Information

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
Creation Date	10-Sep-2010
Revision Date	24-Dec-2021
Print Date	24-Dec-2021
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

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

End of SDS

Прилог 3 MSDS (Безбедносна листа) Aluminium nitrate nonahydrate (NICASAL 51)

ThermoFisher SCIENTIFIC

SAFETY DATA SHEET

Creation Date 05-Oct-2010 **Revision Date** 02-Feb-2021 **Revision Number** 3

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Description:	**Aluminum nitrate nonahydrate**
Cat No. :	**36291**
Synonyms	Nitric acid, aluminum salt, nonahydrate.; Aluminum trinitrate nonahydrate
CAS No	7784-27-2
Molecular Formula	Al N3 O9 . 9 H2 O
REACH registration number	-

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

Recommended Use	Laboratory chemicals.
Uses advised against	No Information available

1.3. Details of the supplier of the safety data sheet

Company

Thermo Fisher (Kandel) GmbH
Erlenbachweg 2, 76870 Kandel, Germany
Tel: +49 (0) 721 84007 280
Fax: +49 (0) 721 84007 300

Swiss distributor - Fisher Scientific AG
Neuhofstrasse 11, CH 4153 Reinach
Tel: +41 (0) 56 618 41 11
e-mail - infoch@thermofisher.com

E-mail address

tech@alfa.com
www.alfa.com
Product safety Tel + +049 (0) 7275 988687-0

1.4. Emergency telephone number

Carechem 24: **+44 (0) 1235 239 670** (Multi-language emergency number)
Poison Information Center Mainz
www.giftinfo.uni-mainz.de
Telephone: +49(0)6131/19240

Exclusively for customers in Austria:
Poison Information Center (VIZ)
Emergency call 0-24 clock: **+43 1 406 43 43**
Office hours: Monday to Friday, 8am to 4pm, tel: +43 1 406 68 98

For customers in Switzerland:
Tox Info Suisse Emergency Number: **145 (24hr)**
Tox Info Suisse: +41-44 251 51 51 (Emergency number from abroad)
Chemtrec (24h) Toll-Free: 0800 564 402
Chemtrec Local: +41-43 508 20 11 (Zurich)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Based on available data, the classification criteria are not met

Health hazards

Serious Eye Damage/Eye Irritation — Category 1 (H318)

Environmental hazards
Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

2.2. Label elements

Signal Word **Danger**

Hazard Statements
H318 - Causes serious eye damage

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

2.3. Other hazards

In accordance with Annex XIII of the REACH Regulation, inorganic substances do not require assessment

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS No	EC No	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Aluminum nitrate nonahydrate	7784-27-2		100	Eye Dam. 1 (H318)

REACH registration number	-

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Ingestion Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Self-Protection of the First Aider Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

Causes eye burns. Causes severe eye damage.

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

Notes to Physician Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons
No information available.

5.2. Special hazards arising from the substance or mixture

May ignite combustibles (wood paper, oil, clothing, etc.). Oxidizer: Contact with combustible/organic material may cause fire.

Hazardous Combustion Products
Nitrogen oxides (NOx).

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

6.2. Environmental precautions

Should not be released into the environment. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Sweep up and shovel into suitable containers for disposal.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Keep away from clothing and other combustible materials.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store near combustible materials. Store under an inert atmosphere. Protect from moisture.

Technical Rules for Hazardous Substances (TRGS) 510 Storage Class (LGK) (Germany)	Storage Class/LGK 13
Switzerland - Storage of hazardous substances	Storage class - SC 11/13 https://www.kvu.ch/de/themen/stoffe-und-produkte https://www.kvu.ch/fr/themes/substances-et-produits https://www.kvu.ch/it/temi/sostanze-e-prodotti

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits
List source(s): **UK** - EH40/2005 Work Exposure Limits, Third edition. Published 2018. **CH** - The Government of Switzerland has set a directive on limit values for working materials (Grenzwerte am arbeitplatz) which is based on the Swiss Federal Regulation "Verordnung über die Verhütung von Unfällen und Berufskrankheiten". This directive is administered, periodically revised and enforced by SUVA (Swiss National Accident Insurance Fund).

Component	European Union	The United Kingdom	France	Belgium	Spain
Aluminum nitrate nonahydrate		STEL: 6 mg/m³ 15 min TWA: 2 mg/m³ 8 hr	TWA / VME: 2 mg/m³ (8 heures).		TWA / VLA-ED: 2 mg/m³ (8 horas)

Component	Italy	Germany	Portugal	The Netherlands	Finland
Aluminum nitrate nonahydrate			TWA: 2 mg/m³ 8 horas		

Component	Austria	Denmark	Switzerland	Poland	Norway
Aluminum nitrate nonahydrate			TWA: 2 mg/m³ 8 Stunden		TWA: 2 mg/m³ 8 timer

Biological limit values
This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Monitoring methods
BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)
No information available

Predicted No Effect Concentration (PNEC)
No information available.

8.2. Exposure controls

Engineering Measures
Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.
Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments (minimum requirement)
Natural rubber Nitrile rubber Neoprene PVC	See manufacturers recommendations	-	EN 374	

Skin and body protection	Long sleeved clothing.

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly
Large scale/emergency use	Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced **Recommended Filter type:** Particulates filter conforming to EN 143
Small scale/Laboratory use	Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. **Recommended half mask:-** Particle filtering: EN149:2001 When RPE is used a face piece Fit Test should be conducted
Environmental exposure controls	No information available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State	Solid	
Appearance	Clear	
Odor	Odorless	
Odor Threshold	No data available	
Melting Point/Range	73 °C / 163.4 °F	
Softening Point	No data available	
Boiling Point/Range	No information available	
Flammability (liquid)	Not applicable	Solid
Flammability (solid,gas)	No information available	
Explosion Limits	No data available	
Flash Point	No information available	**Method -** No information available
Autoignition Temperature	No data available	
Decomposition Temperature	135 °C	
pH	2.5-3.5	5% aq.sol
Viscosity	Not applicable	Solid
Water Solubility	64 g/100ml (25°C)	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Vapor Pressure	No data available	
Density / Specific Gravity	No data available	
Bulk Density	No data available	
Vapor Density	Not applicable	Solid
Particle characteristics	No data available	

9.2. Other information

Molecular Formula	Al N3 O9 . 9 H2 O
Molecular Weight	375.13
Oxidizing Properties	Oxidizer
Evaporation Rate	Not applicable - Solid

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available; Yes

10.2. Chemical stability

Oxidizer: Contact with combustible/organic material may cause fire. Hygroscopic.

10.3. Possibility of hazardous reactions

Hazardous Polymerization Hazardous polymerization does not occur.
Hazardous Reactions None under normal processing.

10.4. Conditions to avoid

Incompatible products. Excess heat. Combustible material. Avoid dust formation. Exposure to moist air or water.

10.5. Incompatible materials

Strong oxidizing agents. Bases. Combustible material. Reducing Agent. Acids. Heavy metals. Cyanides. Finely powdered metals. Strong reducing agents.

10.6. Hazardous decomposition products

Nitrogen oxides (NOx).

SECTION 11: TOXICOLOGICAL INFORMATION

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

Product Information

(a) acute toxicity;
Oral Based on available data, the classification criteria are not met
Dermal No data available
Inhalation No data available

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;
Respiratory No data available
Skin No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

(h) STOT-single exposure;	No data available
(i) STOT-repeated exposure;	No data available
Target Organs	No information available.
(j) aspiration hazard;	Not applicable Solid
Symptoms / effects,both acute and delayed	No information available.

11.2. Information on other hazards

Endocrine Disrupting Properties	Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects	Do not empty into drains.

12.2. Persistence and degradability

Persistence	Soluble in water, Persistence is unlikely, based on information available.
Degradability	Not relevant for inorganic substances.

12.3. Bioaccumulative potential	Bioaccumulation is unlikely
12.4. Mobility in soil	The product is water soluble, and may spread in water systems Will likely be mobile in the environment due to its water solubility. Highly mobile in soils
12.5. Results of PBT and vPvB assessment	In accordance with Annex XIII of the REACH Regulation, inorganic substances do not require assessment.

12.6. Endocrine disrupting properties

Endocrine Disruptor Information	This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects

Persistent Organic Pollutant	This product does not contain any known or suspected substance
Ozone Depletion Potential	This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues/Unused Products	Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.
Contaminated Packaging	Dispose of this container to hazardous or special waste collection point.
European Waste Catalogue (EWC)	According to the European Waste Catalog, Waste Codes are not product specific, but application specific.
Other Information	Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not flush to sewer.
Switzerland - Waste Ordinance	Disposal should be in accordance with applicable regional, national and local laws and regulations. Ordinance on the Avoidance and the Disposal of Waste (Waste Ordinance, ADWO) SR 814.600 https://www.fedlex.admin.ch/eli/cc/2015/891/en

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO	Not regulated
14.1. UN number **14.2. UN proper shipping name** **14.3. Transport hazard class(es)** **14.4. Packing group**	
ADR	Not regulated
14.1. UN number **14.2. UN proper shipping name** **14.3. Transport hazard class(es)** **14.4. Packing group**	
IATA	Not regulated
14.1. UN number **14.2. UN proper shipping name** **14.3. Transport hazard class(es)** **14.4. Packing group**	
14.5. Environmental hazards	No hazards identified
14.6. Special precautions for user	No special precautions required
14.7. Maritime transport in bulk according to IMO instruments	Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Aluminum nitrate nonahydrate	7784-27-2	-	-	-	X	X	-	-	-

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Aluminum nitrate nonahydrate	7784-27-2	-	-	-	-	X	X	X

Legend: X - Listed '-' - Not Listed **KECL** - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Aluminum nitrate nonahydrate	7784-27-2	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals
Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification Water endangering class = 2 (self classification)

Swiss Regulations
Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Article 1 lit. f of the EAER regulation on hazardous work and young people (SR 822.115.2).
Take note on Article 13 Maternity Ordinance (SR 822.111.52) with regards expectant and nursing mothers.

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3
H318 - Causes serious eye damage
H272 - May intensify fire; oxidizer
H315 - Causes skin irritation
H319 - Causes serious eye irritation

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japanese Existing and New Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit
ACGIH - American Conference of Governmental Industrial Hygienists
DNEL - Derived No Effect Level
RPE - Respiratory Protective Equipment
LC50 - Lethal Concentration 50%
NOEC - No Observed Effect Concentration
PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average
IARC - International Agency for Research on Cancer
Predicted No Effect Concentration (PNEC)
LD50 - Lethal Dose 50%
EC50 - Effective Concentration 50%
POW - Partition coefficient Octanol:Water
vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
OECD - Organisation for Economic Co-operation and Development
BCF - Bioconcentration factor

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
MARPOL - International Convention for the Prevention of Pollution from Ships
ATE - Acute Toxicity Estimate
VOC - (volatile organic compound)

Key literature references and sources for data
https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice
Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.
Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.
First aid for chemical exposure, including the use of eye wash and safety showers.

Prepared By	Health, Safety and Environmental Department
Creation Date	05-Oct-2010
Revision Date	02-Feb-2021
Revision Summary	Not applicable.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006. COMMISSION REGULATION (EU) 2020/878 amending Annex II to Regulation (EC) No 1907/2006 .

For Switzerland - Compiled in accordance with the technical provisions referred to in Annex 2, Number 3, ChemO (SR 813.11 - Ordinance on Protection against Dangerous Substances and Preparations).

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

End of Safety Data Sheet

Прилог 4 MSDS (Безбедносна листа) Biotol

SAFETY DATA SHEET

Section 1 - Identification of The Material and Supplier

Regent Industries Pty Ltd
11 Tooth Street
Mitchell, ACT 2911
Phone: (02) 6241 7119
Fax: (02) 6253 8354

Chemical nature:	Water solution of ingredients.
Trade Name:	**Biotol**
Product Use:	Neutral general purpose cleaner.
Creation Date:	**August, 2009**
This version issued:	**January, 2017** and is valid for 5 years from this date.

Section 2 - Hazards Identification

Statement of Hazardous Nature
This product is classified as: Not classified as hazardous according to the criteria of SWA.

Not a Dangerous Good according to Australian Dangerous Goods (ADG) Code, IATA and IMDG/IMSBC criteria.

Risk Phrases: R66. Repeated exposure may cause skin dryness or cracking.
Safety Phrases: S36, S24/25. Wear suitable protective clothing. Avoid contact with skin and eyes.
SUSMP Classification: None allocated.
ADG Classification: None allocated. Not a Dangerous Good under the ADG Code.
UN Number: None allocated

GHS Signal word: NONE. Not hazardous.
HAZARD STATEMENT:
AUH066: Repeated exposure may cause skin dryness or cracking.
PREVENTION
P102: Keep out of reach of children.
P281: Use personal protective equipment as required.
RESPONSE
P337: If eye irritation persists: seek medical attention.
P353: Rinse skin or shower with water.
P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P370+P378: Not combustible. Use extinguishing media suited to burning materials.
STORAGE
P402+P404: Store in a dry place. Store in a closed container.
DISPOSAL
P501: If product can not be recycled, consider controlled incineration, or contact a specialist waste disposal company (see Section 13 of this SDS).

Emergency Overview

Physical Description & colour: Light yellow coloured viscous liquid.
Odour: Pleasant citrus fragrance.
Major Health Hazards: repeated exposure may cause skin dryness or cracking.

Potential Health Effects

Inhalation:
Short term exposure: Available data indicates that this product is not harmful. In addition product is unlikely to cause any discomfort or irritation.

Long Term exposure: No data for health effects associated with long term inhalation.

Skin Contact:
Short term exposure: Available data indicates that this product is not harmful. It should present no hazards in normal use. In addition product is unlikely to cause any discomfort in normal use.
Long Term exposure: Repeated exposure may cause skin dryness or cracking.

Eye Contact:
Short term exposure: This product is believed to be mildly irritating, to eyes, but is unlikely to cause anything more than mild transient discomfort.
Long Term exposure: No data for health effects associated with long term eye exposure.

Ingestion:
Short term exposure: Significant oral exposure is considered to be unlikely. However, this product may be irritating to mucous membranes but is unlikely to cause anything more than transient discomfort.
Long Term exposure: No data for health effects associated with long term ingestion.

Carcinogen Status:

SWA: No significant ingredient is classified as carcinogenic by SWA.
NTP: No significant ingredient is classified as carcinogenic by NTP.
IARC: No significant ingredient is classified as carcinogenic by IARC.

Section 3 - Composition/Information on Ingredients

Ingredients	CAS No	Conc,%	TWA (mg/m3)	STEL (mg/m3)
Non hazardous detergents		10-30	not set	not set
Other non hazardous ingredients	secret	<5	not set	not set
Water	7732-18-5	to 100	not set	not set

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non hazardous ingredients are also possible.

The SWA TWA exposure value is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. The STEL (Short Term Exposure Limit) is an exposure value that may be equalled (but should not be exceeded) for no longer than 15 minutes and should not be repeated more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term "peak "is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly.

Section 4 - First Aid Measures

General Information:

You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this SDS with you when you call.

Inhalation: First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.
Skin Contact: Irritation is unlikely. However, if irritation does occur, flush with lukewarm, gently flowing water for 5 minutes or until chemical is removed.
Eye Contact: Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes or until the product is removed, while holding the eyelid(s) open. Obtain medical advice immediately if irritation occurs. Take special care if exposed person is wearing contact lenses.
Ingestion: If product is swallowed or gets in mouth, do NOT induce vomiting; wash mouth with water and give some water to drink. If symptoms develop, or if in doubt contact a Poisons Information Centre or a doctor.

Section 5 - Fire Fighting Measures

Fire and Explosion Hazards: There is no risk of an explosion from this product under normal circumstances if it is involved in a fire.
Only small quantities of decomposition products are expected from this products at temperatures normally achieved in a fire. This will only occur after heating to dryness.
Fire decomposition products from this product are likely to be irritating if inhaled.
Extinguishing Media: Not Combustible. Use extinguishing media suited to burning materials.
Fire Fighting: If a significant quantity of this product is involved in a fire, call the fire brigade.

Flash point:	Does not burn.
Upper Flammability Limit:	Does not burn.
Lower Flammability Limit:	Does not burn.
Autoignition temperature:	Not applicable - does not burn.
Flammability Class:	Does not burn.

Section 6 - Accidental Release Measures

Accidental release: Minor spills do not normally need any special cleanup measures. In the event of a major spill, prevent spillage from entering drains or water courses. As a minimum, wear overalls, goggles and gloves. Suitable materials for protective clothing include rubber, PVC. Eye/face protective equipment should comprise as a minimum, protective glasses and, preferably, goggles. If there is a significant chance that vapours or mists are likely to build up in the cleanup area, we recommend that you use a respirator. Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned below (section 8). Stop leak if safe to do so, and contain spill. Absorb onto sand, vermiculite or other suitable absorbent material. If spill is too large or if absorbent material is not available, try to create a dike to stop material spreading or going into drains or waterways. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. Can be slippery on floors, especially when wet. Recycle containers wherever possible after careful cleaning. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. This material may be suitable for approved landfill. Ensure legality of disposal by consulting regulations prior to disposal. Thoroughly launder protective clothing before storage or re-use. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

Section 7 - Handling and Storage

Handling: Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Check Section 8 of this SDS for details of personal protective measures, and make sure that those measures are followed. The measures detailed below under "Storage" should be followed during handling in order to minimise risks to persons using the product in the workplace. Also, avoid contact or contamination of product with incompatible materials listed in Section 10.
Storage: Make sure that the product does not come into contact with substances listed under "Incompatibilities" in Section 10. Some liquid preparations settle or separate on standing and may require stirring before use. Check packaging - there may be further storage instructions on the label.

Section 8 - Exposure Controls and Personal Protection

The following Australian Standards will provide general advice regarding safety clothing and equipment:

Respiratory equipment: **AS/NZS 1715**, Protective Gloves: **AS 2161**, Occupational Protective Clothing: AS/NZS 4501 set 2008, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

SWA Exposure Limits	**TWA (mg/m^3)**	**STEL (mg/m^3)**

Exposure limits have not been established by SWA for any of the significant ingredients in this product.

No special equipment is usually needed when occasionally handling small quantities. The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems.

Ventilation: No special ventilation requirements are normally necessary for this product. However make sure that the work environment remains clean and that vapours and mists are minimised.
Eye Protection: Eye protection such as protective glasses or goggles is recommended when product is being used.
Skin Protection: The information at hand indicates that this product is not harmful and that normally no special skin protection is necessary. However, we suggest that you routinely avoid contact with all chemical products and that you wear suitable gloves (preferably elbow-length) when skin contact is likely.
Protective Material Types: We suggest that protective clothing be made from the following: rubber, PVC.
Respirator: Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned above.
Safety deluge showers should, if practical, be provided near to where this product is being used.

Section 9 - Physical and Chemical Properties:

Physical Description & colour:	Light yellow coloured viscous liquid.
Odour:	Pleasant citrus fragrance.
Boiling Point:	Approximately 100°C at 100kPa.
Freezing/Melting Point:	Approximately 0°C.
Volatiles:	Water component.
Vapour Pressure:	2.37 kPa at 20°C (water vapour pressure).
Vapour Density:	No data.
Specific Gravity:	No data.
Water Solubility:	Completely soluble in water.
pH:	7 approx
Volatility:	No data.
Odour Threshold:	No data.
Evaporation Rate:	No data.
Coeff Oil/water distribution:	No data
Autoignition temp:	Not applicable - does not burn.

Section 10 - Stability and Reactivity

Reactivity: This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.
Conditions to Avoid: None known.
Incompatibilities: No particular Incompatibilities.
Fire Decomposition: Only small quantities of decomposition products are expected from this products at temperatures normally achieved in a fire. This will only occur after heating to dryness. Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Water. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.
Polymerisation: This product will not undergo polymerisation reactions.

Section 11 - Toxicological Information

Local Effects:
Target Organs: There is no data to hand indicating any particular target organs.

Classification of Hazardous Ingredients

Ingredient Risk Phrases

No ingredient mentioned in the HSIS Database is present in this product at hazardous concentrations.

Section 12 - Ecological Information

Insufficient data to be sure of status. Expected to not be an environmental hazard.

Section 13 - Disposal Considerations

Disposal: This product may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. If neither of these options is suitable, consider controlled incineration, or landfill.

Section 14 - Transport Information

ADG Code: This product is not classified as a Dangerous Good by ADG, IATA or IMDG/IMSBC criteria. No special transport conditions are necessary unless required by other regulations.

Section 15 - Regulatory Information

AICS: All of the significant ingredients in this formulation are compliant with NICNAS regulations.

Section 16 - Other Information

This SDS contains only safety-related information. For other data see product literature.

Acronyms:

ADG Code	Australian Code for the Transport of Dangerous Goods by Road and Rail (7th edition)
AICS	Australian Inventory of Chemical Substances
SWA	Safe Work Australia, formerly ASCC and NOHSC
CAS number	Chemical Abstracts Service Registry Number
IARC	International Agency for Research on Cancer
NOS	Not otherwise specified
NTP	National Toxicology Program (USA)
R-Phrase	Risk Phrase
SUSMP	Standard for the Uniform Scheduling of Medicines & Poisons
UN Number	United Nations Number

THIS SDS SUMMARISES OUR BEST KNOWLEDGE OF THE HEALTH AND SAFETY HAZARD INFORMATION OF THE PRODUCT AND HOW TO SAFELY HANDLE AND USE THE PRODUCT IN THE WORKPLACE. EACH USER MUST REVIEW THIS SDS IN THE CONTEXT OF HOW THE PRODUCT WILL BE HANDLED AND USED IN THE WORKPLACE.

IF CLARIFICATION OR FURTHER INFORMATION IS NEEDED TO ENSURE THAT AN APPROPRIATE RISK ASSESSMENT CAN BE MADE, THE USER SHOULD CONTACT THIS COMPANY SO WE CAN ATTEMPT TO OBTAIN ADDITIONAL INFORMATION FROM OUR SUPPLIERS

OUR RESPONSIBILITY FOR PRODUCTS SOLD IS SUBJECT TO OUR STANDARD TERMS AND CONDITIONS, A COPY OF WHICH IS SENT TO OUR CUSTOMERS AND IS ALSO AVAILABLE ON REQUEST.

Please read all labels carefully before using product.

This SDS is prepared in accord with the SWA document "Preparation of Safety Data Sheets for Hazardous Chemicals - Code of Practice" (December 2011)

http://www.kilford.com.au/ Phone (02)9251 4532

SAFETY DATA SHEET

Issued by: Regent Industries Pty Ltd Phone: 02 6241 7119

Poisons Information Centre: 131126 from anywhere in Australia – (0800 764 766 in New Zealand)

Прилог 5 MSDS (Безбедносна листа) Железо III хлорид FeCl3

Pencco

Customer Service 800-864-1742
FAX 888-273-6226

Material Safety Data Sheet (MSDS)
Ferric Chloride Solution

SECTION 1 – CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name: Ferric Chloride Solution
Product Use: Water Treatment Chemical
Product Formula: $FeCl_3$
Chemical Family: Inorganic Iron Salts
CAS #: 7705-08-0

Manufacturer's Name: Pencco, Inc.
Manufacturer's Address: P.O. Box 600, San Felipe, TX 77473
Emergency Phone Number: PENCCO (979) 885-005
CHEMTREC (800) 424-9300 – 24 hours a day

Revision Date: February 4 2014

SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS #	Weight Percentage	ACGIH TLV	OSHA PEL	STEL
Water	7732-18-5	58 – 72%	N/A	N/A	N/A
Ferric Chloride	7705-08-0	28 – 42%	1 mg/m^3	1 mg/m^3	N/A
Ferrous Chloride	7758-94-3	<0.5%	1 mg/m^3	1 mg/m^3	N/A
Hydrochloric Acid	7647-01-0	<0.5%	5 ppm	5 ppm	N/A

Section 313 Supplier Notification: The hydrochloric acid mentioned above is subject to the reporting requirements of SARA TITLE III Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). This notification must be included in all MSDS's that are copied and distributed for this material.

SECTION 3 – HAZARD IDENTIFICATION

Appearance and Odor: Reddish-brown liquid with a slightly acidic odor.
Emergency Overview: A corrosive chemical. Harmful or fatal if swallowed. Harmful if inhaled. Eye or skin contact may cause irritation. Contact with liquid or vapor form of this chemical may cause severe injury or death. Avoid overexposure.
Fire and Explosion Hazards: Substance itself does not burn, but may decompose upon heating to produce corrosive and/or toxic fumes, such as hydrogen chloride and phosgene gas. Ferric chloride can react with metals to form flammable and potentially explosive hydrogen gas.
Carcinogenicity: None of the components of this material are listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

Summary of Acute Health Hazards
Ingestion – Toxic by ingestion. May cause irritation to the mouth and stomach. Higher doses may lead to abnormal liver function with nausea or vomiting, stomach pain, diarrhea, fast and weak pulse, lethargy, pallor, shock, hypertension, dilated pupils, fever, coma and even death.

Individuals with pre-existing liver diseases may have increased susceptibility to the toxicity of exposure.
Inhalation – May cause irritation of the upper respiratory tract, resulting in difficulty breathing.
Skin Contact – Irritation and possibly burns.
Eye Contact – Irritation and possibly burns.

SECTION 4 – FIRST AID MEASURES

Eye Contact First Aid: Immediately flush eyes for 15 minutes with large amounts of water while holding eyelids apart. Washing within one minute is essential to achieve maximum effectiveness. Obtain medical attention IMMEDIATELY after flushing.

Skin Contact First Aid: Flush skin with water. Remove contaminated clothing; wash before reuse. If irritation is still present, seek medical attention IMMEDIATELY.

Inhalation First Aid: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Obtain medical attention IMMEDIATELY.

Ingestion First Aid: DO NOT INDUCE VOMITING. Give 1 or 2 glasses of water or milk. Never give anything by mouth to an unconscious individual. Obtain medical attention IMMEDIATELY.

SECTION 5 – FIRE FIGHTING MEASURES

Flash Point: Not applicable.

Upper/Lower Explosion Limits in Air: Not applicable.

Auto Ignition Temperature: Not applicable.

Extinguishing Media: Will not burn; use materials appropriate for surrounding fire.

Fire and Explosion Hazards: Substance itself does not burn, but may decompose upon heating to produce corrosive and/or toxic fumes, such as hydrogen chloride and phosgene gas. Ferric chloride can react with metals to form flammable and potentially explosive hydrogen gas.

Fire Fighting Instructions: Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face-piece operated in a positive pressure mode. Move exposed containers from fire area if it can be done without risk. Use water to keep fire-exposed containers and tanks cool.

Hazardous Product of Decomposition or Combustion: Hydrogen chloride, hydrogen, phosgene.

	NFPA Rating	HMIS Rating	4 = Extreme / Severe
Health	2	2	3 = High / Serious
Reactivity	0	0	2 = Moderate
Flammability	0	0	1 = Slight

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Review safety precautions before proceeding with cleanup. Use appropriate personal protection equipment. Do not touch spilled material. Neutralize spill with lime (calcium hydroxide), limestone (calcium carbonate), or soda ash (sodium carbonate). Restrict access to area until completion of clean up.

Caution: limestone and soda ash will evolve CO2; ventilation should be provided in enclosed areas. Dike area around spill to prevent spreading, and use absorbent material to pick up spill.

CERCLA Reportable Discharge (RQ): 1000 lbs. (454 kg), Based on anhydrous ferric chloride. Divide by solution concentration to obtain solution weight.

Disposal: Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user to determine whether a substance should be classified as a hazardous waste at the time of disposal. This is due to the fact that product use, transformation, synthesis, mixtures, etc. may change the nature of the product. Dispose of waste in accordance with applicable federal, state, and local laws.

RCRA: Test waste material for corrosivity, DOO2, prior to disposal.

Steps To Be Taken In Case Material Is Released Or Spilled: Notify the appropriate environmental authorities. Note that spills may need to be reported to the National Response Center ((800) 424-8802)

SECTION 7 – HANDLING AND STORAGE

Handing: Store and handle in corrosion-proof materials (and area). Use FRP or PVC pipes. Be cautious of substance residue in empty containers. Act according to precautions and warnings set forth.

Storage: Store in a tightly closed container. Do not store in metal containers. Fiberglass, plastic, or rubber-lined tanks may be used for storage. Protect from damage and keep separated from incompatible substances.

SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

Respiratory Protection: Adequate general ventilation should be provided to keep vapor and mists below exposure limits. The exposure limits for some components are listed in Section 2. Wear a NIOSH/OSHA approved respirator with a dust/mist cartridge if there is potential of exposure to mists in excess of applicable limits, in any situation where product vapor or mists may be present, such as in confined spaces.

Eye Protection: Wear splash resistant goggles and/or safety glasses with side shields. Wear a full face shield if possibility of material splashing or spraying exists. Maintain eye wash fountain. Water should be supplied through insulated and heat-traced lines to prevent freeze-ups in cold weather.

Skin Protection: Where there is possibility of skin contact, use the following as appropriate, to avoid skin contact: gloves impervious to material, apron, boots, hood, pants, and jacket. Maintain a safety shower with quick opening valves. Water should be supplied through insulated and heat-traced lines to prevent freeze-ups in cold weather.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point:	**106°C (223°F)**	**pH:**	**< 2.0**
Melting Point:	**N/A**	**Solubility in Water:**	**Complete**
Specific Gravity:	**1.2 – 1.6**	**Vapor Pressure:**	**40 mm Hg @ 20°C**
% Volatile:	**60 – 75 (Water)**	**Evaporation Rate:**	**N/A**
Vapor Density (Air = 1):	**N/A**	**Molecular Weight:**	**162.2**
Appearance:	**Red/Brown Colored Liquid**	**Odor:**	**Slightly acrid**

SECTION 10 – STABILITY AND REACTIVITY

Stability: Stable at normal conditions
Polymerization: Will not occur.
Decomposition: Decomposes upon heating to produce corrosive and/or toxic fumes, such as hydrogen chloride. Contact with metals may evolve flammable hydrogen gas.
Incompatibility: Rapidly corrodes most metals (titanium is one exception); may generate flammable, potentially explosive hydrogen gas. Avoid contact with nylon, aluminum/aluminum alloys, carbon steel, stainless steel, and copper / copper alloys. Metals, bases, halocarbons, acids, and combustible materials can be considered incompatible.

SECTION 11 – TOXOLOGICAL INFORMATION

Chronic Effects: Repeated dosage may cause hemosiderosis, including possible damage to liver and pancreas.
Toxicological Data: Anhydrous Ferric Chloride Solid Oral LD_{50} (rat) = 450 mg/kg
Carcinogenicity: None of the components of this material are listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.
Reproductive Effects: TDLo Rat 1 day (intratesticular) 12976 $\mu g/kg$; TDLo Rat 1 day (intravaginal) 29 mg/kg pre pregnancy continuous.
Target Organs: No data available.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicological Information: TLm Daphnia 15 ppm/96 hr fresh water/ conditions of bioassay not specified.
Persistence and Degradation: No data available

SECTION 13 – DISPOSAL CONSIDERATIONS

Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user to determine whether a substance should be classified as a hazardous waste at the time of disposal. This is due to the fact that product use, transformation, synthesis, mixtures, etc. may change the nature of the product. Product containers should be thoroughly emptied before disposal. Dispose of waste in accordance with applicable federal, state, and local laws.

SECTION 14 – TRANSPORTATION INFORMATION

DOT Shipping Name: Ferric Chloride Solution
Hazard Class: 8 – Corrosive Material
UN Number: UN 2582
Packing Group: III
Reportable Quantity: 1000 lbs (454 kg)
Shipping Containers: Rubber-lined steel tank cars/trucks; polyethylene drums, bottles
Storage Conditions: Keep containers closed

SECTION 15 – REGULATORY INFORMATION

OSHA: Hazardous Corrosive Liquid – 29 CFR 1920.1200
OSHA Process Safety (29 CFR 1910.119): No

CERCLA: Hazardous Substance – Reportable Quantity (RQ) = 1000 lbs (454 kg)

SARA Regulations: 313 and 40 CFR 372: No
SARA Hazard Categories, SARA Sections 311/312 (40 CFR 370.21):
Acute: Yes; Chronic: No; Fire: No; Reactive: No; Sudden Release: No

Clean Water Act: Designated as a hazardous substance under Section 311(b)(2)(A) of the Federal Water Pollution Control Act; ferric chloride is also regulated by the Clean Water Act Amendments of 1977 and 1978. This chemical is subject to regulations regarding its discharge.

TSCA Inventory Status: Yes
California Proposition 65: No
Right-To-Know Lists: Massachusetts, California, Pennsylvania, New Jersey. This substance does not contain nor is manufactured with ozone-depleting substances.

SECTION 16 – OTHER INFORMATION

IMPORTANT! Read this MSDS before use or disposal of this product. Pass along the information to employees and any other persons who could be exposed to the product to be sure that they are aware of the information before use or other exposure.

Pencco provides the information contained in each material safety data sheet ("MSDS"), technical data sheet ("TDS"), product information brochure and/or information contained herein (including data and statements) in good faith and makes no representations as to its comprehensiveness or accuracy as of the date of publication. The MSDSs, TDSs, and product information brochures are referred to collectively as the "Data Sheets". It is the responsibility of the user to obtain and use the most recent version of the Data Sheets. Each Data Sheet relates only to the specific product designated therein and may not be valid where such product is used in combination with any other materials or in any process. Further, since the conditions and methods of use of the product and information are beyond the control of Pencco, Pencco expressly disclaims any and all liability as to any consequential damages or results obtained or arising from any use of the products or the information contained in the Data Sheets. NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE AS CONCERNS THE DATA SHEETS OR THE RELATED PRODUCTS.

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Прилог 6 MSDS (Безбедносна листа) N-Methyl-2-pyrrolidone (Sachtofloc 37.10)

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU

N-Methyl-2-pyrrolidone ≥99,8 %, for synthesis

article number: **4306**
Version: **2.0 en**
Replaces version of: 2016-04-29
Version: (1)

date of compilation: 2015-12-07
Revision: 2019-03-18

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

1.1 Product identifier

Identification of the substance	**N-Methyl-2-pyrrolidone**
Article number	4306
Registration number (REACH)	01-2119472430-46-xxxx
Index No	606-021-00-7
EC number	212-828-1
CAS number	872-50-4

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

Identified uses: laboratory chemical
laboratory and analytical use

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0
Telefax: +49 (0) 721 - 56 06 149
e-mail: sicherheit@carlroth.de
Website: www.carlroth.de

Competent person responsible for the safety data sheet : Department Health, Safety and Environment

e-mail (competent person) : **sicherheit@carlroth.de**

1.4 Emergency telephone number

Emergency information service **Poison Centre Munich: +49/(0)89 19240**

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Classification acc. to GHS

Section	Hazard class	Hazard class and category	Hazard statement
3.2	skin corrosion/irritation	(Skin Irrit. 2)	H315
3.3	serious eye damage/eye irritation	(Eye Irrit. 2)	H319
3.7	reproductive toxicity	(Repr. 1B)	H360D
3.8R	specific target organ toxicity - single exposure (respiratory tract irritation)	(STOT SE 3)	H335

2.2 Label elements

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

Signal word **Danger**

Pictograms

GHS07, GHS08

Hazard statements

H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H360D	May damage the unborn child

Precautionary statements

Precautionary statements - prevention

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

Precautionary statements - response

P302+P352	IF ON SKIN: Wash with plenty of soap and water.
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.

For professional users only

Labelling of packages where the contents do not exceed 125 ml

Signal word: **Danger**

Symbol(s)

H360D	May damage the unborn child.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P308+P313	IF exposed or concerned: Get medical advice/attention.

2.3 Other hazards

There is no additional information.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance	N-Methyl-2-pyrrolidone
Index No	606-021-00-7
Registration number (REACH)	01-2119472430-46-xxxx
EC number	212-828-1
CAS number	872-50-4

Molecular formula	C_5H_9NO
Molar mass	99,13 $^{g}/_{mol}$

Substance of Very High Concern (SVHC)

Name of substance	CAS No	Wt%	Listed in	Remarks
N-Methyl-2-pyrrolidone	872-50-4	100	Candidate list	Repr. A57c

Legend
Candidate list — Substances meeting the criteria referred to in Article 57 and for eventual inclusion in Annex XIV
Repr. A57c — Toxic for reproduction (article 57c)

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Take off contaminated clothing.

Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

Rinse skin with water/shower. In case of skin irritation, consult a physician.

Following eye contact

Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. In case of eye irritation consult an ophthalmologist.

Following ingestion

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

4.2 Most important symptoms and effects, both acute and delayed

Cough, Diarrhoea, Irritation, Vomiting, Dyspnoea

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings
water spray, foam, dry extinguishing powder, carbon dioxide (CO2)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Combustible. Vapours are heavier than air, spread along floors and form explosive mixtures with air.

Hazardous combustion products

In case of fire may be liberated: nitrogen oxides (NOx), carbon monoxide (CO), carbon dioxide (CO2)

5.3 Advice for firefighters

Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray.

6.2 Environmental precautions

Keep away from drains, surface and ground water.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill

Covering of drains.

Advices on how to clean up a spill

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Provision of sufficient ventilation. Avoid: Aerosol or mist formation.

- **Measures to prevent fire as well as aerosol and dust generation**


Keep away from sources of ignition - No smoking.

Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice

- **Ventilation requirements**

Use local and general ventilation.

- **Specific designs for storage rooms or vessels**

Recommended storage temperature: 15 – 25 °C.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Notation	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Source
EU	N-methyl-2-pyrrolidone	872-50-4		IOELV	10	40	20	80	2009/161/EU
GB	N-methyl-2-pyrrolidone	872-50-4		WEL	10	40	20	80	EH40/2005

Notation

STEL Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Relevant DNELs/DMELs/PNECs and other threshold levels

- **human health values**

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	208 mg/kg	human, dermal	worker (industry)	acute - systemic effects
DNEL	80 mg/m³	human, inhalatory	worker (industry)	acute - systemic effects
DNEL	14,4 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	40 mg/m³	human, inhalatory	worker (industry)	chronic - local effects
DNEL	4,8 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

- **environmental values**

Endpoint	Threshold level	Environmental compartment	Exposure time
PNEC	5 mg/l	water	intermittent release
PNEC	0,25 mg/l	freshwater	short-term (single instance)
PNEC	0,025 mg/l	marine water	short-term (single instance)
PNEC	10 mg/l	sewage treatment plant (STP)	short-term (single instance)

Endpoint	Threshold level	Environmental compartment	Exposure time
PNEC	1,09 $^{mg}/_{kg}$	freshwater sediment	short-term (single instance)
PNEC	0,109 $^{mg}/_{kg}$	marine sediment	short-term (single instance)
PNEC	0,07 $^{mg}/_{kg}$	soil	short-term (single instance)

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection

Use safety goggle with side protection.

Skin protection

- **hand protection**

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

- **type of material**

Butyl caoutchouc (butyl rubber)

- **material thickness**

0,7mm.

- **breakthrough times of the glove material**

>480 minutes (permeation: level 6)

- **other protection measures**

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection

Respiratory protection necessary at: Aerosol or mist formation. P2 (filters at least 94 % of airborne particles, colour code: White). Type: A (against organic gases and vapours with a boiling point of > 65 °C , colour code: Brown).

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	
Physical state	liquid (fluid)
Colour	colourless
Odour	like: amine
Odour threshold	No data available
Other physical and chemical parameters	
pH (value)	8,5 – 10 (water: 100 $^{g}/_{l}$, 20 °C)
Melting point/freezing point	-24,2 °C at 1.013 hPa
Initial boiling point and boiling range	204,3 °C at 1.016 hPa
Flash point	91 °C at 1.013 hPa
Evaporation rate	no data available
Flammability (solid, gas)	not relevant (fluid)
Explosive limits	
• lower explosion limit (LEL)	1,3 vol%
• upper explosion limit (UEL)	9,5 vol%
Explosion limits of dust clouds	not relevant
Vapour pressure	0,32 hPa at 20 °C
Density	1,03 $^{g}/_{cm^3}$ at 25 °C
Vapour density	3,42 (air = 1)
Bulk density	Not applicable
Relative density	Information on this property is not available.
Solubility(ies)	
Water solubility	1.000 $^{g}/_{l}$ at 20 °C miscible in any proportion
Partition coefficient	
n-octanol/water (log KOW)	-0,46 (25 °C) (ECHA)
Soil organic carbon/water (log KOC)	0,87 (ECHA)
Auto-ignition temperature	245 °C at 1.013 hPa - ECHA
Decomposition temperature	no data available
Viscosity	
• kinematic viscosity	1,613 $^{mm^2}/_{s}$
• dynamic viscosity	1,661 mPa s at 25 °C
Explosive properties	Shall not be classified as explosive
Oxidising properties	none

9.2 Other information

Temperature class (EU, acc. to ATEX)	T3 (Maximum permissible surface temperature on the equipment: 200°C)

SECTION 10: Stability and reactivity

10.1 Reactivity

In case of warming: Vapours can form explosive mixtures with air.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

Violent reaction with: Strong oxidiser, Strong alkali, Strong acid

10.4 Conditions to avoid

Direct light irradiation. Keep away from heat.

10.5 Incompatible materials

different plastics

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Shall not be classified as acutely toxic.

Exposure route	Endpoint	Value	Species	Source
oral	LD50	4.150 $^{mg}/_{kg}$	rat	ECHA
inhalation: dust/mist	LC50	>5,1 $^{mg}/_{l}$/4h	rat	ECHA
dermal	LD50	>5.000 $^{mg}/_{kg}$	rat	ECHA

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Summary of evaluation of the CMR properties

Reproductive toxicity:
May damage the unborn child

- **Specific target organ toxicity - single exposure**

May cause respiratory irritation.

- **Specific target organ toxicity - repeated exposure**

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

- **If swallowed**

diarrhoea, vomiting, nausea

- **If in eyes**

Irritating to eyes

- **If inhaled**

cough, breathing difficulties, Irritation to respiratory tract

- **If on skin**

causes skin irritation

Other information

None

SECTION 12: Ecological information

12.1 Toxicity

acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute)

Endpoint	Value	Species	Source	Exposure time
LC50	>500 $^{mg}/_{l}$	rainbow trout	ECHA	96 h
ErC50	600,5 $^{mg}/_{l}$	algae	ECHA	72 h

Aquatic toxicity (chronic)

Endpoint	Value	Species	Source	Exposure time
EC50	>1.000 $^{mg}/_{l}$	daphnia magna	ECHA	24 h
NOEC	12,5 $^{mg}/_{l}$	daphnia magna	ECHA	21 d

12.2 Process of degradability

The substance is readily biodegradable.
Theoretical Oxygen Demand with nitrification: 2,502 $^{mg}/_{mg}$
Theoretical Oxygen Demand: 1,937 $^{mg}/_{mg}$
Theoretical Carbon Dioxide: 2,22 $^{mg}/_{mg}$

Process	Degradation rate	Time
biotic/abiotic	>90 %	20 d
oxygen depletion	73 %	28 d

12.3 Bioaccumulative potential

Does not significantly accumulate in organisms.

n-octanol/water (log KOW) -0,46 (25 °C)

12.4 Mobility in soil

Henry's law constant	0 $^{Pa\ m^3}/_{mol}$ at 20 °C
The Organic Carbon normalised adsorption coefficient	0,87

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Sewage disposal-relevant information

Do not empty into drains.

13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1	UN number	(not subject to transport regulations)
14.2	UN proper shipping name	not relevant
14.3	Transport hazard class(es)	not relevant
	Class	-
14.4	Packing group	not relevant not assigned to a packing group
14.5	Environmental hazards	none (non-environmentally hazardous acc. to the dangerous goods regulations)

14.6 Special precautions for user

There is no additional information.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

- **Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)**

Not subject to ADR, RID and ADN.

- **International Maritime Dangerous Goods Code (IMDG)**

Not subject to IMDG.

- **International Civil Aviation Organization (ICAO-IATA/DGR)**

Not subject to ICAO-IATA.

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

- **Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)**

Not listed.

- **Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)**

Not listed.

- **Regulation 850/2004/EC on persistent organic pollutants (POP)**

Not listed.

- **Restrictions according to REACH, Annex XVII**

Name of substance	CAS No	Wt%	Type of registration	Conditions of restriction	No
N-Methyl-2-pyrrolidone	872-50-4	100	2018/0035/EC annex XVII	R71	71
N-Methyl-2-pyrrolidone		100	1907/2006/EC annex XVII	R3	3
N-Methyl-2-pyrrolidone		100	1907/2006/EC annex XVII	R28-30	30

Legend

R28-30 1. Shall not be placed on the market, or used,
- as substances,
- as constituents of other substances, or,
- in mixtures,

for supply to the general public when the individual concentration in the substance or mixture is equal to or greater than:
- either the relevant specific concentration limit specified in Part 3 of Annex VI to Regulation (EC) No 1272/2008, or,
- the relevant concentration specified in Directive 1999/45/EC where no specific concentration limit is set out in Part 3 of Annex VI to Regulation (EC) No 1272/2008.

Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of substances and mixtures, suppliers shall ensure before the placing on the market that the packaging of such substances and mixtures is marked visibly, legibly and indelibly as follows:
'Restricted to professional users'.
2. By way of derogation, paragraph 1 shall not apply to:
(a) medicinal or veterinary products as defined by Directive 2001/82/EC and Directive 2001/83/EC;
(b) cosmetic products as defined by Directive 76/768/EEC;
(c) the following fuels and oil products:
- motor fuels which are covered by Directive 98/70/EC,
- mineral oil products intended for use as fuel in mobile or fixed combustion plants,
- fuels sold in closed systems (e.g. liquid gas bottles);
(d) artists' paints covered by Directive 1999/45/EC;
(e) the substances listed in Appendix 11, column 1, for the applications or uses listed in Appendix 11, column 2.
Where a date is specified in column 2 of Appendix 11, the derogation shall apply until the said date.

Legend

R3 1. Shall not be used in:
- ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
- tricks and jokes,
- games for one or more participants, or any article intended to be used as such, even with ornamental aspects,
2. Articles not complying with paragraph 1 shall not be placed on the market.
3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they:
- can be used as fuel in decorative oil lamps for supply to the general public, and,
- present an aspiration hazard and are labelled with R65 or H304,
4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).
5. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met:
(a) lamp oils, labelled with R65 or H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: 'Keep lamps filled with this liquid out of the reach of children'; and, by 1 December 2010, 'Just a sip of lamp oil - or even sucking the wick of lamps - may lead to life-threatening lung damage';
(b) grill lighter fluids, labelled with R65 or H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: 'Just a sip of grill lighter may lead to life threatening lung damage';
(c) lamp oils and grill lighters, labelled with R65 or H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.
6. No later than 1 June 2014, the Commission shall request the European Chemicals Agency to prepare a dossier, in accordance with Article 69 of the present Regulation with a view to ban, if appropriate, grill lighter fluids and fuel for decorative lamps, labelled R65 or H304, intended for supply to the general public.
7. Natural or legal persons placing on the market for the first time lamp oils and grill lighter fluids, labelled with R65 or H304, shall by 1 December 2011, and annually thereafter, provide data on alternatives to lamp oils and grill lighter fluids labelled R65 or H304 to the competent authority in the Member State concerned. Member States shall make those data available to the Commission.

R71 Shall not be placed on the market, or used, as substance or in mixtures, where the substance or mixture is intended for the manufacturing or processing of non-ferrous metals.

• Restrictions according to REACH, Title VIII

None.

• List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list

Substance of Very High Concern (SVHC)

Name acc. to inventory	CAS No	Listed in	Remarks
1-methyl-2-pyrrolidone (NMP)	872-50-4	Candidate list	Repr. A57c

Legend

Candidate list Substances meeting the criteria referred to in Article 57 and for eventual inclusion in Annex XIV
Repr. A57c Toxic for reproduction (article 57c)

• Seveso Directive

2012/18/EU (Seveso III)

No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes
	not assigned		

• Directive 75/324/EEC relating to aerosol dispensers

Filling batch

Deco-Paint Directive (2004/42/EC)

VOC content	100 % 1.030 g/l

Directive on industrial emissions (VOCs, 2010/75/EU)

VOC content	100 %
VOC content	1.030 g/l

Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II

not listed

Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

not listed

Regulation 98/2013/EU on the marketing and use of explosives precursors

not listed

Regulation 111/2005/EC laying down rules for the monitoring of trade between the Community and third countries in drug precursors

not listed

National inventories

Substance is listed in the following national inventories:

Country	National inventories	Status
AU	AICS	substance is listed
CA	DSL	substance is listed
CN	IECSC	substance is listed
EU	ECSI	substance is listed
EU	REACH Reg.	substance is listed
JP	CSCL-ENCS	substance is listed
JP	ISHA-ENCS	substance is listed
KR	KECI	substance is listed
MX	INSQ	substance is listed
NZ	NZIoC	substance is listed
PH	PICCS	substance is listed
TR	CICR	substance is listed
TW	TCSI	substance is listed
US	TSCA	substance is listed

Legend

AICS	Australian Inventory of Chemical Substances
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
ISHA-ENCS	Inventory of Existing and New Chemical Substances (ISHA-ENCS)
KECI	Korea Existing Chemicals Inventory

Legend

NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2009/161/EU	Comission Directive establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EH40/2005	EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
Index No	the Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV	indicative occupational exposure limit value
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
Repr.	reproductive toxicity

Abbr.	Descriptions of used abbreviations
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
STEL	short-term exposure limit
SVHC	Substance of Very High Concern
TWA	time-weighted average
VOC	Volatile Organic Compounds
vPvB	very Persistent and very Bioaccumulative
WEL	workplace exposure limit

Key literature references and sources for data

- Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- International Maritime Dangerous Goods Code (IMDG)

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H315	causes skin irritation
H319	causes serious eye irritation
H335	may cause respiratory irritation
H360D	may damage the unborn child

Disclaimer

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

Прилог 7 MSDS (Безбедносна листа) Polyaluminium chloride solution

GEO® SPECIALTY CHEMICALS

NSF Certified to NSF/ANSI 60 MUL = 250 mg/L

SAFETY DATA SHEET

Revision date 2015-03-12 **Revision number** 1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product name Polyaluminum chloride solution

Other means of identification

Product code 3204J
Synonyms Aluminum chloride hydroxide; Aluminum hydroxychloride; Aluminum chloride oxide

Recommended use of the chemical and restrictions on use

Recommended use [RU] No information available
Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier GEO Specialty Chemicals, Inc.
9213 Arch Street Pike
Little Rock, AR 72206
1-800-453-2586
Hours: Monday-Friday 9:00-5:00 CST (Central Standard Time)

Emergency telephone number

24 Hour Emergency Phone Number CHEMTREC: (800) 424-9300
Outside USA - 00 1 (703) 527-3887 collect calls accepted

Contact Point safety-data-sheet-fp@geosc.com

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Corrosive to metals	Category 1

GHS Label elements, including precautionary statements

EMERGENCY OVERVIEW

Physical state	Color	Appearance	Odor
liquid	colorless to yellow	clear	no appreciable odor

WARNING

Hazard statements
Causes skin irritation
Causes serious eye irritation
May be corrosive to metals

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Keep only in original container

Precautionary Statements - Response
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Absorb spillage to prevent material damage

Precautionary Statements - Storage
Store in corrosive resistant container with a resistant inner liner

Other information
• Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	weight-%	TRADE SECRET
Polyaluminum Chloride	1327-41-9	25 - 35%	*
Water	7732-18-5	65 - 75%	*

*The exact percentage (concentration) of composition has been withheld as a trade secret

4. FIRST AID MEASURES

First Aid Measures

Eye contact
Remove contact lenses, if worn. Immediately flush with plenty of water for at least 15 minutes, holding eyelids apart to ensure flushing of the entire surface. Washing within one minute is essential to achieve maximum effectiveness. Seek medical advice immediately.

Skin contact
Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.

Ingestion
Do NOT induce vomiting. If vomiting should occur spontaneously, keep airway clear. Never give anything by mouth to an unconscious person. Get medical attention.

Inhalation
Remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Most important symptoms and effects, both acute and delayed

Acute effects
Possible eye, skin and respiratory tract irritation.

Chronic effects
May aggravate existing skin, eye, and lung conditions. Persons with kidney disorders have an increased risk from exposure based on general information found on aluminum salts.

Indication of any immediate medical attention and special treatment needed

Note to physicians
Aluminum soluble salts may cause gastroenteritis if ingested. Treatment includes the use of demulcents. Note: Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media
Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons
No information available

Special hazards arising from the substance or mixture

Special Hazard
May produce hazardous fumes or hazardous decomposition products.

Advice for firefighters

Firefighting measures
Product is a water solution and nonflammable. In a fire, this product may build up pressure and rupture a sealed container; cool exposed containers with water spray. Use self-contained breathing apparatus in confined areas; avoid breathing mist or spray.

Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

Explosion data

Sensitivity to Mechanical Impact
None.

Sensitivity to Static Discharge
None.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Wear adequate personal protective clothing and equipment. Approved breathing apparatus may be necessary.

Environmental precautions

Environmental precautions
Do not allow liquid to enter streams or waterways.

Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Build dikes as necessary to contain flow of large spills.

Methods for cleaning up
Clear spills immediately. For small spills, use soda ash to neutralize, an inert material to absorb. Place contaminated materials into containers and store in a safe place to await proper disposal. Caution: Use of soda ash may generate carbon dioxide gas. Provide adequate ventilation to spill area.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling
Keep container closed when not in use
Keep away from heat and open flame.
Avoid contact with eyes, skin and clothing
Wear chemical splash goggles, gloves, and protective clothing when handling.
Wash thoroughly after handling
Avoid breathing vapor or mist
Use with adequate ventilation and employ respiratory protection where mist or spray may be generated.
FOR INDUSTRIAL USE ONLY.

Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions
Store in a cool, dry place away from direct heat.
Keep container closed when not in use
Do not store in unlined metal containers.
Product may slowly corrode iron, brass, copper, aluminum, mild steel, and stainless steel.

Incompatible products
Alkalis.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines
This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering controls
Local exhaust ventilation as necessary to maintain exposures to within applicable limits. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details. If there are no applicable or established exposure limit requirements or guidelines, general ventilation should be sufficient.

Individual protection measures, such as personal protective equipment

Eye/face Protection
Wear chemical splash goggles and face shield (when eye and face contact is possible due to splashing or spraying of material).

Hand Protection
Appropriate chemical resistant gloves should be worn.

Skin and body protection
Standard work clothing and work shoes.

Respiratory protection
If exposures exceed the PEL or TLV, use NIOSH/MSHA approved respirator in accordance with OSHA Respiratory Protection Requirements under 29 CFR 1910.134. If there are no applicable or established exposure limit requirements or guidelines, general ventilation should be sufficient.

Other personal protection data
Eyewash fountains and safety showers must be easily accessible.

Hygiene measures
Take off contaminated clothing and wash before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	liquid
Color	colorless to yellow
Appearance	clear
Odor	no appreciable odor
Odor threshold	No information available

Property	Values	Remarks / Method
pH	2.0 - 3.0	as is
Melting / freezing point	-12 °C / 10 °F	No information available
Boiling point / boiling range	104 °C / 220 °F	No information available
Flash point	Not applicable	No information available
Evaporation rate	No information available	No information available
Flammability (solid, gas)	No information available	No information available
Flammability Limit in Air		
Upper flammability limit	Not applicable	No information available
Lower flammability limit	Not applicable	No information available
Vapor pressure	No information available	No information available
Vapor density	No information available	No information available
Specific gravity	1.19 - 1.21	No information available
Solubility (water)	Soluble below pH 4	No information available
Solubility in other solvents	No information available	No information available
Partition coefficient: n-octanol/water	No information available	No information available

Autoignition temperature	Not applicable	No information available
Decomposition temperature	No information available	No information available
Kinematic viscosity	No information available	No information available
Dynamic viscosity	< 20 cps @ 25 °C	No information available

Other information

Density	9.92 - 10.09 lb/gal
Bulk Density	No information available
Explosive properties	No information available.
Oxidizing properties	No information available
Softening point	No information available
Molecular weight	No information available
Volatile organic compounds (VOCs) content	No information available
Percent Volatile, wt.%	65 - 80%

10. STABILITY AND REACTIVITY

Reactivity

Reactivity
No data available.

Chemical stability

Chemical stability
Stable.

Possibility of hazardous reactions

Possibility of hazardous reactions
None under normal processing.

Hazardous polymerization
No.

Conditions to avoid

Conditions to avoid
None.

Incompatible materials

Materials to avoid
Alkalis.

Hazardous decomposition products

Hazardous decomposition products
Thermal decomposition may release toxic and/or hazardous gases such as aluminum, Cl_2, and HCl.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Eye contact
May cause moderate eye irritation that can become severe with prolonged contact. Prolonged exposure to Aluminum salts may cause conjunctivitis.

Skin contact
Prolonged and/or repeated contact may cause skin irritation.

Ingestion
May cause irritation of the mouth, throat and stomach. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Inhalation
Inhalation of mist or vapor may cause respiratory tract irritation.

Acute toxicity - Product Information

Oral LD50	No information available
Dermal LD50	No information available
Inhalation LC50	No information available

Acute toxicity - Component Information

Component	weight-%	Oral LD50	Dermal LD50	Inhalation LC50
Polyaluminum Chloride 1327-41-9	25 - 35%	> 2000 mg/kg (Rat)	--	--

Information on toxicological effects

Symptoms
No information available.

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

Skin corrosion/irritation
No information available

Serious eye damage/eye irritation
No information available

Sensitization
No information available

Germ cell mutagenicity
No information available

Carcinogenicity
This product does not contain any components in concentrations greater than or equal to 0.1% that are listed as known or suspected carcinogens by NTP, IARC, ACGIH, or OSHA.

Reproductive toxicity
No information available

Specific target organ toxicity - Single exposure
No information available.

Specific target organ toxicity - Repeated exposure
No information available

Aspiration hazard
No information available.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	5720 mg/kg

Other information
Conclusions are drawn from sources other than direct testing.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Acute aquatic toxicity - Product Information

Fish	LD (24 hr, static, Fresh Water) 10 mg/L *Oncorhynchus kisutch*, Coho salmon, Silver salmon [1] LD (24 hr, static, Fresh Water) 10 mg/L *Ptychocheilus oregonenis*, Northern squawfish [1] LD (24 hr, static, Fresh Water) 10 mg/L *Oncorhynchus tshawytscha*, Chinook salmon [1]
Crustacea	LC50 (48 Hour, static) 33.2 mg/L *Ceriodaphnia dubia*[2]
Algae/aquatic plants	No information available

Persistence and degradability

Persistence and degradability
No information available

Bioaccumulative potential

Bioaccumulative potential
No information available

Mobility

Mobility
No information available

Results of PBT and vPvB assessment

PBT and vPvB assessment
No information available

Other adverse effects

Other information
[1] Data from USEPA ECOTOX database search, reference: Lethal Effects of 1888 Chemicals upon Four Species of Fish From Western North America, MacPhee, C. and R. Ruelle, Univ. of Idaho Forest, Wildlife Range Experimental Station Bull. No. 3, Moscow, ID, 112p.
[2] Generated from tests conducted by SEAUS Testing Laboratories Nov., 1993 using EPA/600-4-90/027

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes
Dispose of product in an approved chemical waste landfill or incinerate in accordance with applicable Federal, state and local regulations.

Contaminated packaging
Since empty containers retain product residue, follow label warnings even after container is emptied.

14. TRANSPORT INFORMATION

DOT Regulated

DOT UN/NA Number	UN3264
Proper shipping name	Corrosive Liquid, Acidic, Inorganic, N.O.S. (Polyaluminum Chloride Solution)
Hazard class	8
Packing group	III
ERG Number	154

ICAO/IATA Regulated

UN number	UN3264
Proper shipping name	Corrosive Liquid, Acidic, Inorganic, N.O.S. (Polyaluminum Chloride Solution)
Hazard class	8
Packing group	III
ERG Code	8L

IMDG Regulated

UN number	UN3264
Proper shipping name	Corrosive Liquid, Acidic, Inorganic, N.O.S. (Polyaluminum Chloride Solution)
Hazard class	8
Packing group	III
EmS	F-A; S-B

Harmonized Tariff Number 2827.49

15. REGULATORY INFORMATION

International Inventories

TSCA (United States)
All ingredients are on the inventory or exempt from listing

Australia (AICS)
All ingredients are on the inventory or exempt from listing

Canada (DSL)
All ingredients are on the inventory or exempt from listing

Canada (NDSL)
None of the ingredients are on the inventory.

China (IECSC)
All ingredients are on the inventory or exempt from listing

EINECS (European Inventory of Existing Chemical Substances)
All ingredients are on the inventory or exempt from listing

ELINCS (European List of Notified Chemical Substances)
None of the ingredients are on the inventory.

ENCS (Japan)
All ingredients are on the inventory or exempt from listing

South Korea (KECL)
All ingredients are on the inventory or exempt from listing

Philippines (PICCS)
All ingredients are on the inventory or exempt from listing

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
AICS - Australian Inventory of Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
IECSC - China Inventory of Existing Chemical Substances
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

U.S. Federal Regulations

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic health hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive hazard	No

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

U.S. State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Polyaluminum Chloride 1327-41-9	
Minnesota Hazardous Substance List	Present
Pennsylvania Right to Know List	Present

16. OTHER INFORMATION

NFPA Rating	Health - 2	Flammability - 0	Instability - 0	Special Hazard - COR
HMIS Rating	Health - 2	Flammability - 0	Physical hazard - 0	Personal protection - X

Product code	3204J
Revision date	2015-03-12
Revision number	1

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.

End of Safety Data Sheet

Прилог 8 MSDS (Безбедносна листа) Polyaluminium chloride (Sachtoklar, Sachtofloc, EKOFIX)

ConnectingChemistry

BRENNTAG

1. Physico Chemical Water Treatment

APPLICATION	PRODUCT RANGE	BRAND NAME
Coagulation	Polyaluminium Chloride	PAC Sachtoklar/Ekofix R7/ PAC Sachtoklar 39/Sachtoklar P
	Polyaluminium Chloride Blends	Sachtofloc/Biotol range
	Polyaluminium Nitrate	Nicasal
	Ferric III Chloride Solution 40 % Aluminium Sulphate (gran./sol. 8 %)	
	Sodium Aluminate	Alkaflock T
	Ferric III Sulphate solution 42%	
Flocculation	Anionic – Cationic – Non Ionic	Zetag/Magnafloc/Praestol/ Drimax/Alclar/Rheomax/Alcotac
	Powders and Emulsions Removal of spilled polymer	Adsorbium95
Defoaming	Silicone – Fatty Acid Based	Struktol
Heavy Metal Removal	Metalclean Na3T Ion Exchange Resins	Metalclean range Na3T Purolite/Brenntag
pH-Correction	Caustic Soda Solution Hydrochloric Acid Lime Chalk Powder Others	Neutralac
Phosphate-Removal	Polyaluminium Chloride Granulated Ferric Hydroxide Ferric III Chloride Solution 40 %	PAC Sachtoklar 39 Everzit® Phat
Filtration	Hydroanthracite	Everzit® N/H Everzit® Special Plus
	Activated Carbon Diatomaceous Earth Filter Sand (several sizes)	Norit Celite

2. Biological Water Treatment

APPLICATION	PRODUCT RANGE	BRAND NAME
	Bio supplement – Powder Bio supplement – Liquid (custom made)	Nutriflok Stabilox
	Bio supplement anaerobic	Methanostim liquide
Nutrient Addition	C: Methanol/Acetic Acid/ Brenntaplus range	Brenntaplus CL16/CL51/VP1
	P: Phosphoric Acid/ Ammonium Phosphates	
	N: Ureum (powder/liquid)/ Ammonium Nitrate	
	N/P Blends	
Sedimentation Problems (bulking)	Filamentous Flocs	Settle-On Concentrate Settle-On
	Light Sludge	Aquatal T Biotol Range Megafloc
Phosphate-Removal	Polyaluminium Chloride Granulated Ferric Hydroxide Ferric III Chloride Solution 40 %	PAC Sachtoklar 39 Everzit® Phat
NH4-Removal	Ion Exchange Resins	Purolite/Brenntag
Defoaming	Silicone – Fatty Acid Based	Struktol
Anti-Scaling	Dispersion Agent	Polystabil Antiprex
Activated Carbon	Activated Carbon Granular/Powder	Norit
Odour Control	Polyaluminium Nitrate Polyaluminium Chloride Ferric III Chloride 40 % Chlorine Dioxide	Biotol Fresh Talon Clorious2 (NOTIF1085)

3. Process Water Preparation

APPLICATION	PRODUCT RANGE	BRAND NAME
Coagulation	Polyaluminium Chloride	PAC Sachtoklar/Ekofix R7/ PAC Sachtoklar 39
	Polyaluminium Chloride Blends	Sachtofloc
	Ferric III Chloride Solution 40 % Alu Sulphate (gran./sol. 8 %)	
	Sodium Aluminate	Alkaflock T
Flocculation	Anionic – Cationic – Non Ionic	Zetag/Magnafloc/Praestol/ Drimax/Alclar/Rheomax/Alcotac
	Powders and Emulsions Removal spilled polymer	Adsorbium95
pH-Correction	Caustic Soda Solution Hydrochloric Acid Lime Chalk Powder Others	Neutralac
Filtration	Hydroanthracite Activated Carbon Diatomaceous Earth Filter Sand (several sizes)	Everzit®N/H/Special Plus Norit Celite
Manganese Removal	Manganese Dioxide	Everzit®Mn
Arsenic Removal	Granulated Ferric Hydroxide	Everzit® As
Phosphate-Removal	Polyaluminium Chloride Granulated Ferric Hydroxide Ferric III Chloride Solution 40 %	PAC Sachtoklar 39 Everzit® Phat
Softening	Ion Exchange Resins	Purolite/Brenntag
Demineralisation	Ion Exchange Resins Anti-scaling/Cleaning RO	Purolite/Brenntag Freeflow/Mem/Memobrane
Chlorination	Sodium Hypochlorite	Chloorstabil 299-B
Desinfection	Biocides	Antimicrobial/Aqucar Bioban/Clorious2 (NOTIF1085) DIOXONITE (S065) NOTIF886/ Dioxonic Acid Kathon WT/WTE Twinoxide

4. Potable Water

APPLICATION	PRODUCT RANGE	BRAND NAME
Activated Carbon	Activated Carbon Granular/Powder	Norit
Filtration	Hydroanthracite	Everzit® N/ H Everzit® Special Plus
Coagulation	Polyaluminium Chloride	PAC Sachtoklar PAC Sachtoklar 39
Desinfection	Sodium Hypochlorite Chlorine dioxide	Chloorstabil 299-B Twinoxide/Clorious2 (NOTIF1085)
Softening	Ion Exchange Resins	Purolite/Brenntag
Salt	Salt	Salt Axal/Salt Broxo/ Salt Round Pastilles E/ Salt Vacuum Food
Deacidification	Dolomitic Filter Material	Everzit® Dol
Oxidizing Reagent	Liquid K/Na Permanganates Potassium Permanganate	RemOx L® Aquox®

5. Soil Remediation

APPLICATION	PRODUCT RANGE	BRAND NAME
PHYSICO-CHEMICAL BASED TECHNIQUES		
Coagulation	Polyaluminium Chloride	PAC Sachtoklar/Ekofix R7/ PAC Sachtoklar 39
	Polyaluminium Chloride Blends	Sachtofloc
	Ferric III Chloride Solution 40 % Alu Sulphate (gran./sol. 8 %)	
	Sodium Aluminate	Alkaflock T
Flocculation	Anionic – Cationic – Non Ionic	Zetag/Magnafloc/Praestol/ Drimax/Alclar/Rheomax/Alcotac
	Powders and Emulsions Removal of spilled polymer	Adsorbium95
Defoaming	Fatty Acid Based Silicone Based	Struktol
ISCO		
In Situ Chemical Oxydation	Potassium & Sodium Permanganates (different concentrations available)	RemOx L®
	Sodium Persulphate	Klozur
	Fenton's Reagent (H202)	
BIOREMEDATION		
Nutrient Addition	Lactates	Purasal/Purasolv
	Nutrient Blends	Nutriflok/Stabilox/ Instant Biomix
	C/P/N sources	Methanol/Acetic Acid/ Brenntaplus VP1/Ureum Phosphoric Acid
Oxigen Addition	Slow Oxigen Addition	Oxigel
HEAVY METAL REMOVAL		
Heavy Metal Removal	Metalclean range Na3T Resins	Metalclean Na3T Purolite/Brenntag

5. Soil Remediation (continuation)

APPLICATION	PRODUCT RANGE	BRAND NAME
ADSORPTION TECHNIQUES		
Activated Carbon Other Filter Aids	Activated Carbon for Water and Air applications	Norit
	Hydroanthracites – all kind of Filter Aids	Everzit®
	Removal of Soluble Fe, Mn, H_2S, As, Ra	Everzit® Mn
BASIC CHEMICALS		
Acids and Lyes	pH Regulation & other Purposes	

6. Swimming Pools Water Treatment

APPLICATION	PRODUCT RANGE	BRAND NAME
DESINFECTION		
Biocides closed circuit (purchase/sell/use of those products needs to be registered online*)	**Calcium Hypochlorite 8586-B: granular/tablets 7g & 200 g/sticks 300g**	**hth-range**
	Sodium Hypochlorite	**Chloorstabil 299-B**
	Desinfection Foot-Bath	**Asept 19 5183-B**
No registration required	**200 g tablets/granular**	**Aqua Protect – granular** **Aqua Protect – tabs 200 gr.**
MAINTENANCE		
pH-Correction	**pH Plus Granular** **pH Plus Solution** **pH Minus Granular** **pH Minus Solution**	**Sodium Bicarbonate** **Sodium Hydroxide 29 %** **Sodium Bisulphate** **Hydrochloric Acid 28 %** **Sulphuric Acid 37,5 %**
Flocculation	**Polyaluminium Chloride**	**PAC Sachtoklar** **Aluminium Sulphate Powder**
Cleaning	**Detergent** **Degreasing** **Descaling**	**Detergent Squill** **Ascal NO 70 (alcaline)** **Ascal 810 (acide)**
Filtration	**Hydroanthracite** **Activated Carbon** **Diatomaceous Earth** **Filter Sand (several sizes)**	**Everzit®N/H/Special Plus** **Norit** **Celite**
Accessories	**Test Material**	**DPD Tablets** **Phenol Red Tablets** **Pool Tester (Manual)** **Photometers**

7. Swimming Pools Water Treatment - hth range

APPLICATION	PRODUCT RANGE	BRAND NAME
DESINFECTION		
Biocides closed circuit (purchase/sell/use of those products needs to be registered online*)	hth Registration number 8586-B	Granular & Shock powder: Start-up & shock treatment Tablets: 7 g & 200 g - Sticks 300 g: Continuous treatment
MAINTENANCE		
pH-correction	pH-Plus pH-Minus	hth pH-Plus powder (1,2 kg – 5 kg) hth Ph-Minus powder (2 kg – 5 kg)
Cleaning	Waterline Cleaner	hth Borker Gel Net Ligne (1 kg)
Flocculation	Flocculants	hth flocculant in cartridges (10 x 0.125 kg) hth-Flocfix liquid (1,16 kg): Liquid Flocculant
SPAS & Sauna		Flash desinfection Anti-foam Anti-scale Filter cleaner Cleaner pH-Minus pH-Plus
Starter Kit		Mini-kit for start-up pool
Control		hth test kit liquid pH-Chlorine hth recharge test kit liquid pH-Chlorine

* For more information about registration of biocides of the closed circuit, please consult http://www.health.belgium.be/nl/gesloten-circuit-0

8. Water Treatment Suppliers

SUPPLIER	PRODUCT GROUP	BRAND NAME
Avecom	Bio-Supplements Nutrients	Nutriflok 505 Stabilox Methanostim Liquide
SOLENIS	Flocculants: Anionic/Cationic/Non-Ionic	Zetag Praestol
BASF The Chemical Company		Magnafloc (mining industry)
BRENNTAG	Chlorine Dioxide	Clorious2 (NOTIF1085)
CABOT NORIT ACTIVATED CARBON	Activated Carbon	Norit
CARUS	Liquid K/Na Permanganates Potassium Permanganate	RemOx® L Aquox®
DR. NAEHRING	Anti-scaling/Cleaning RO	Freeflow/Mem/Memobrane
EVERS	Hydroantracite Manganese Dioxide Granulated Ferric Hydroxide Granulated Ferric Hydroxide	Everzit®N/H/Special Plus Everzit® Mn Everzit® As Everzit® Phat
IMERYS Talc	Talc	Aquatal
Lonza	Calcium Hypochlorite Swimming Pool Products	hth - range
purac	Lactates	Purasal

SUPPLIER	PRODUCT GROUP	BRAND NAME
PUROLITE ION EXCHANGE RESINS BRENNTAG	Ion Exchange Resins	Purolite/Brenntag
SACHTLEBEN SACHTLEBEN WASSERCHEMIE GMBH	Polyaluminium Chlorides Polyaluminium Chlorides Blends	PAC Sachtoklar Ekofix Sachtofloc Biotol
struktol	Defoamers	Struktol

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  8540 Deerlijk
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Updated October 2020

Прилог 9 MSDS (Безбедносна листа) Sodium aluminium oxide (Alkaflock -натриум алуминат - NaAlO2)

ThermoFisher SCIENTIFIC

SAFETY DATA SHEET

Revision Date 18-Feb-2020

Revision Number 2

1. Identification

Product Name Sodium aluminum oxide

Cat No. : 35453

CAS-No 1302-42-7
Synonyms No information available

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Alfa Aesar
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com

Emergency Telephone Number
During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660.
After normal business hours, call Carechem 24 at (866) 928-0789.

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/Irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word
Danger

Hazard Statements
Causes severe skin burns and eye damage
May cause respiratory irritation

Precautionary Statements
Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Response
Immediately call a POISON CENTER or doctor/physician
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Ingestion
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Sodium aluminate (NaAlO2)	1302-42-7	<=100

4. First-aid measures

General Advice
Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.

Skin Contact
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.

Inhalation
Remove to fresh air. If not breathing, give artificial respiration. Call a physician or poison control center immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Ingestion
Immediate medical attention is required. Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person.

Most important symptoms and effects	Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	Not combustible. CO_2, dry chemical, dry sand, alcohol-resistant foam.
Unsuitable Extinguishing Media	No information available
Flash Point	No information available
Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
The product causes burns of eyes, skin and mucous membranes.

Hazardous Combustion Products
Sodium oxides. Fumes of aluminum or aluminum oxide.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
3	0	0	-

6. Accidental release measures

Personal Precautions	Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing.
Environmental Precautions	Should not be released into the environment. Do not allow material to contaminate ground water system. See Section 12 for additional Ecological Information.
Methods for Containment and Clean Up	Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

7. Handling and storage

Handling	Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe dust. Do not ingest. If swallowed then seek immediate medical assistance.
Storage	Store under an inert atmosphere. Corrosives area. Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines	This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.

Engineering Measures	Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid Crystalline
Appearance	No information available
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	No data available
Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	1.52 g/cm3
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	Al2 O3 .Na2 O
Molecular Weight	163.94

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Air sensitive.
Conditions to Avoid	Incompatible products.
Incompatible Materials	Acids, Oxidizing agent
Hazardous Decomposition Products	Sodium oxides, Fumes of aluminum or aluminum oxide
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information
Toxicologically Synergistic Products No information available

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

Irritation Causes skin burns: Causes eye burns: May cause irritation of respiratory tract

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Sodium aluminate (NaAlO2)	1302-42-7	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

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Persistence and Degradability Soluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN2812
Proper Shipping Name SODIUM ALUMINATE, SOLID

Hazard Class	8
Packing Group	III

TDG

UN-No	UN2812
Proper Shipping Name	SODIUM ALUMINATE, SOLID
Hazard Class	8
Packing Group	III

IATA

UN-No	UN2812
Proper Shipping Name	Sodium aluminate, solid
Hazard Class	8
Packing Group	III

IMDG/IMO

UN-No	UN2812
Proper Shipping Name	Sodium aluminate, solid
Hazard Class	8
Packing Group	III

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Sodium aluminate (NaAlO2)	1302-42-7	X	ACTIVE	-

Legend:
TSCA - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
Sodium aluminate (NaAlO2)	1302-42-7	X	-	215-100-1	X	X	X	X	KE-01036

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations Not applicable

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N
U.S. Department of Homeland Security	This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade	No information available

16. Other information

Prepared By	Health, Safety and Environmental Department Email: tech@alfa.com www.alfa.com
Revision Date	18-Feb-2020
Print Date	18-Feb-2020
Revision Summary	SDS authoring systems update, replaces ChemGes SDS No. 1302-42-7.

Disclaimer

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End of SDS