PLASMATEC companies group

TEP TURBOENERGY POWER

Digitally signed by Slivinschi Victor
Date: 2024.05.03 12:01:23 +03'00'

QUALITY CERTIFICATE

№ 2310-154 Date: 28.10.2023

Manufacturer:
PrJSC "PlasmaTec"
Ukraine, 21036, Vinnytsia region, Vinnytsia district, Vinnytsia, 18 Pravednykiv svitu str.

Counterparty:
Elmeron SRL
Moldova, 2023, Кишинів, В. Вода st, 5

Nomination	Quantity packs, pcs	Total weight, kg
Welding electrodes TML-3U TM MONOLITH d 4 mm: pack 5 kg	10	50

Standard/Classification	EN ISO 3580-A-E CrMoV1 B 2 2 AWS A5.5: E8018-B2
Batch classification / №	C5/005

Mechanical properties of weld metal in accordance EN 10204 - 2.2

Index	Requirements	Actual data
Tensile strength, MPa (N/mm²)	≥590	808
Elongation, %	15 - 50	20
Impact energy (KV), J +20°C	≥24	68/65/60
Yield strength, MPa (N/mm²)	≥435	733

Chemical analysis of weld metal, % in accordance EN 10204 - 3.1

Index	Requirements	Actual data
C	≤0.12	0.08
Si	0.15 - 0.40	0.29
Mn	0.50 - 0.90	0.71
P	≤0.03	0.020
S	≤0.025	0.017
Cr	0.80 - 1.25	0.99
Mo	0.40 - 0.70	0.61
V	0.10 - 0.30	0.21

Post weld heat treatment - As welded

The manufacturer guarantees that the content of chemical elements and the mechanical properties of the weld metal meet the requirements of EN ISO 3580, and also the delivery conditions meet the requirements of EN ISO 544.

The quality manager _____ (caption)

PLASMATEC ОД 03567397 Україна Вінницька обл.

For quality issues contact: e-mail: quality@plasmatec.com.ua, phone: +380(67)433-19-36 (Viber, WhatsApp, Telegram)

ELMERON REPUBLICA MOLDOVA elmeron 1002600038525 SOCIETATEA CU RĂ[illegible] LIMITATĂ

PLASMATEC companies group

QUALITY CERTIFICATE

№ 2309-112 Date: 26.09.2023

Manufacturer:
PrJSC "PlasmaTec"
Ukraine, 21036, Vinnytsia region, Vinnytsia district,
Vinnytsia, 18 Pravednykiv svitu str.

Counterparty:
Elmeron SRL
Moldova, 2023, Кишинів, В. Вода st, 5

Nomination	Quantity packs, pcs	Total weight, kg
Welding electrodes TML-3U TM MONOLITH d 3 mm: pack 2.5 kg	20	50

Standard/Classification	EN ISO 3580-A-E CrMoV1 B 2 2 AWS A5.5: E8018-B2
Batch classification / №	C5/004

Mechanical properties of weld metal in accordance EN 10204 - 2.2

Index	Requirements	Actual data
Tensile strength, MPa (N/mm²)	≥590	808
Elongation, %	15 - 50	20

Chemical analysis of weld metal, % in accordance EN 10204 - 3.1

Index	Requirements	Actual data
C	≤0.12	0.08
Si	0.15 - 0.40	0.25
Mn	0.50 - 0.90	0.73
P	≤0.03	0.019
S	≤0.025	0.023
Cr	0.80 - 1.25	1.04
Mo	0.40 - 0.70	0.70
V	0.10 - 0.30	0.19

Post weld heat treatment - As welded

The manufacturer guarantees that the content of chemical elements and the mechanical properties of the weld metal meet the requirements of EN ISO 3580, and also the delivery conditions meet the requirements of EN ISO 544.

The quality manager _____ *(caption)*

For quality issues contact: e-mail: quality@plasmatec.com.ua, phone: +380(67)433-10-36 (Viber, WhatsApp, Telegram)

MESCİER
DEMİR ÇELİK SAN.VE TİC.AŞ.
YESİL MAHALLE SANAYİ BOLGESİ NO:50 78000 KARABUK, TURKEY

MILL TEST CERTIFICATE

F 1

DATE:	3.02.2022
REF:	1211151

THE INSPECTION CERTIFICATE AS PER EN 10204 CLAUSE 3.1 CONFORMING TO THE DEFINITION IN EN 20168

CUSTOMER:	TO WHOM IT MAY CONCERN

CERTIFICATE NO:	191-2022
COMMODITY:	HOT ROLLED STEEL EQUAL ANGLES HOT ROLLED STEEL I BEAMS HOT ROLLED STEEL U CHANNELS

TEST PIECES NO	HEAT NUMBER:	PRODUCT NAME	SIZE IN MM	QUALITY	MECHANICAL PROPERTIES									CHEMICAL COMPOSITION															
					TENSION TEST					CHARPY TEST(1)		BEND TEST	RE-BEND TEST	FATIGUE TEST	PRODUCT ANALYSIS														
					ORIENTATION(2)	YIELD S. (Re)	TENSILE S.(Rm)	Rm / Re	ELONGATION	TEST PIECES WIDTH (mm)	VALUE (JOULE)				C	Si	Mn	P	S	Ti	Cu	Ni	Cr	Mo	V	Al	W	Nb	N	CARBON EQUIVALENT
						N/mm2			%						%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	(CEV)
1	2106110	EQUAL ANGLES	63,0 x 63,0 x 5,0	S275JR		306,4	432,1	1,41	32,1						0,12	0,18	0,5332	0,009	0,030	0,004	0,30	0,17	0,13	0,053	0,0044	0,004	0,0001	0,000	0,008	0,28
2	2106155	EQUAL ANGLES	63,0 x 63,0 x 6,0	S275JR		341,2	489,6	1,43	30,3						0,10	0,20	0,5149	0,023	0,032	0,004	0,42	0,12	0,12	0,014	0,0026	0,004	0,0001	0,001	0,009	0,25
3	2106123	EQUAL ANGLES	75,0 x 75,0 x 5,0	S275JR		334,5	489,6	1,46	32,9						0,11	0,18	0,5017	0,010	0,040	0,004	0,28	0,14	0,12	0,041	0,0028	0,004	0,0001	0,000	0,009	0,25
4	2106111	EQUAL ANGLES	75,0 x 75,0 x 6,0	S275JR		346,3	463,3	1,34	29,3						0,11	0,20	0,531	0,010	0,032	0,000	0,25	0,12	0,12	0,053	0,0073	0,004	0,005	0,001	0,007	0,26
5	2104111	EQUAL ANGLES	100,0 x 100,0 x 7,0	S275JR		304,8	447,9	1,47	26,6						0,14	0,19	0,5826	0,030	0,036	0,004	0,42	0,11	0,22	0,014	0,0034	0,005	0,0001	0,005	0,008	0,32
6	2105984	EQUAL ANGLES	100,0 x 100,0 x 7,0	S275JR		310,4	449,7	1,45	31,7						0,13	0,16	0,512	0,009	0,031	0,000	0,24	0,11	0,06	0,018	0,0022	0,003	0,005	0,001	0,008	0,25
7	2105952	EQUAL ANGLES	100,0 x 100,0 x 8,0	S275JR		342,8	494,9	1,32	29,7						0,10	0,19	0,5005	0,011	0,030	0,004	0,44	0,13	0,12	0,018	0,0034	0,004	0,0001	0,001	0,008	0,25
8	2105102	U CHANNELS	UPEAA 80,0	S275JR		310,3	433,3	1,39	29,3						0,11	0,18	0,5084	0,011	0,038	0,004	0,33	0,10	0,08	0,017	0,003	0,005	0,0001	0,000	0,009	0,24
9	2105103	U CHANNELS	UPEAA 80,0	S275JR		319,8	481,5	1,51	29,7						0,11	0,19	0,5219	0,013	0,035	0,004	0,42	0,12	0,10	0,018	0,0025	0,005	0,0001	0,008	0,009	0,26
10	2105099	U CHANNELS	UPEAA 80,0	S275JR		330,2	468,3	1,42	26,3						0,11	0,22	0,5355	0,012	0,040	0,004	0,38	0,11	0,07	0,016	0,003	0,005	0,0003	0,007	0,009	0,25
11	2105012	U CHANNELS	UPEAA 100,0	S275JR		305,4	441,3	1,45	30,3						0,11	0,16	0,5186	0,013	0,023	0,004	0,47	0,12	0,11	0,019	0,0027	0,006	0,0011	0,007	0,009	0,27
12	2105008	U CHANNELS	UPEAA 100,0	S275JR		308,9	436,4	1,41	30,3						0,11	0,19	0,5093	0,017	0,019	0,004	0,40	0,11	0,08	0,017	0,0038	0,006	0,0001	0,007	0,008	0,25
13	2104488	U CHANNELS	UPEAA 120,0	S275JR		300,9	458,6	1,39	31,8						0,12	0,20	0,5089	0,016	0,030	0,004	0,40	0,11	0,11	0,017	0,002	0,005	0,0001	0,007	0,009	0,26
14	2104839	U CHANNELS	UPEAA 120,0	S275JR		344,2	453,7	1,31	29,1						0,12	0,19	0,5093	0,014	0,024	0,004	0,47	0,13	0,10	0,021	0,0031	0,006	0,0008	0,006	0,009	0,27
15	2104840	U CHANNELS	UPEAA 120,0	S275JR		292,4	460,4	1,40	30,1						0,12	0,20	0,5236	0,015	0,034	0,004	0,46	0,14	0,09	0,022	0,0036	0,003	0,0001	0,007	0,010	0,27
16	2104264	U CHANNELS	UPEAA 120,0	S275JR		329,3	470,7	1,43	30,1						0,11	0,19	0,5023	0,023	0,034	0,004	0,40	0,13	0,14	0,017	0,0051	0,006	0,0001	0,009	0,009	0,27
17	2104844	U CHANNELS	UPEAA 140,0	S275JR		312,2	458,2	1,46	35,2						0,11	0,19	0,5057	0,013	0,034	0,004	0,44	0,12	0,08	0,022	0,0027	0,006	0,0001	0,008	0,009	0,26
18	2104842	U CHANNELS	UPEAA 140,0	S275JR		320,1	469,3	1,47	28,7						0,10	0,19	0,5099	0,012	0,039	0,004	0,40	0,12	0,08	0,020	0,003	0,006	0,0001	0,007	0,009	0,24
19	2105508	I BEAMS	IPE 200,0	S275JR		340,7	455,4	1,34	32,6						0,11	0,19	0,5166	0,009	0,030	0,004	0,32	0,11	0,07	0,014	0,0024	0,004	0,0001	0,001	0,008	0,24
20	2105749	I BEAMS	IPE 160,0	S275JR		322,4	462,3	1,43	35,1						0,11	0,20	0,5529	0,017	0,034	0,004	0,47	0,12	0,14	0,017	0,0033	0,004	0,0001	0,001	0,009	0,28
21	2105748	I BEAMS	IPE 160,0	S275JR		320,1	469,3	1,47	28,7						0,10	0,16	0,5265	0,013	0,019	0,004	0,46	0,12	0,10	0,017	0,0028	0,005	0,0001	0,001	0,009	0,25

CE

9001:2015 27001:2013 SIRIM

CE NUMBER:2344-CPR-0004
acc. to audit report numbered 17270-09-01/ÇÜ
ISO 9001:2015 Certificate No: QMS 19270-01
ISO 27001:2013 Certificate No: 190801059001
SIRIM (Certified to MS EN 10025-2:2011)
Certification Number: PC000941 / PC000942

WE HEREBY CERTIFY THAT THE MATERIAL HEREIN HAS BEEN MADE AND TESTED IN ACCORDANCE WITH ABOVE SPECIFICATION AND THE RESULTS OF ALL TEST ARE ACCEPTANCE

(1) VALUES ARE FOR KV150 TEST UNDER ROOM TEMPERATURE
(2) "L" MEANS "LOGITUDINAL" "T" MEANS "TRANSVERSE"
(3) PRODUCTION, ROLLING TOLERANCE AND ANY OTHER DETAILS ARE AS PER ABOVE REFERENCED CONTRACT

MANUFACTURER

MESCİER
KARABÜK T.R.

УКРАЇНА
UKRAINE

П А Т "ДНІПРОВСЬКИЙ МЕТКОМБІНАТ"
PJSC "DNEPROVSKY IRON & STEEL INTEGRATED WORKS"

51925, Україна, м.Кам`янське, вул. Соборна, 18б
Тел.: (0569) 51-61-00 51-61-24 51-68-46
e-mail: kanc@dmkd.dp.ua

51925, Ukraine, Kamyanske, Soborna, 18b
Tel: (0569) 51-61-00 51-61-24 51-68-46
e-mail: kanc@dmkd.dp.ua

СЕРТИФИКАТ КАЧЕСТВА № 548

3.1 EN 10204:2004

Продавец (экспортёр)
05393043
Грузополучатель, адрес, страна
ФІЛІЯ ТОВ "МЕТІНВЕСТ-СМЦ" У М. ОДЕСА
Україна, 65031, М. ОДЕСА, ВУЛ. НОВОМОСКОВСЬКИЙ ШЛЯХ, Б. 23/1
УКРАЇНА

Заказ на производство № **2290128021**
Контракт от
Спецификация № дополнительная
лот дополнительная

Вагон № **53512588**
Лист **1** Листов **1**

Наименование продукции	НД	Вид грузового места, код	Способ выплавки
Прокат угловой равнополочный горячекатаный	**ДСТУ 2651:2005(ГОСТ380-2005) ДСТУ 4484:2005 (ГОСТ 535-2005) ДСТУ 2251-2018**	**Пачки**	**Конвертерный**

№ п-п	Номера плавок	Номера партий	Углер-ный эквива лент	Марка	Размеры, мм		Ед. изм. код	Кол-во товара, шт.	Масса, т	
					Диаметр, сечение профиля.	Длина			брутто	нетто
1	**110463**	**3001**	**0,25**	**Ст3пс**	**50x50x5**	**6000 +100/-0**	**Пачки,728**	**18**	**67.262**	**66.912**
								18	**67.262**	**66.912**

Показатели качества товара

Химический состав по ковшевой пробе, %

№ п-п	C	Mn	Si	S	P	Cr	Ni	Cu	Ti	Al	V	Nb	N	As	Mo	B	Sn	Sb
1	**0,16**	**0,45**	**0,11**	**0,007**	**0,015**	**0,05**	**0,04**	**0,06**	**-**	**0,003**	**0,001**	**-**	**0,008**	**0,003**	**0,010**	**-**	**0,004**	**-**

Механические свойства

№ п-п	Предел текучести, Н/мм2	Временное сопротивление, Н/мм2	Относит. удлинение,%	Относит. сужение,%	Твердость		Работа удара, Дж	Ударная вязкость, Дж/см2		Изгиб, Излом
					HB	HRC		При пом-ре, С	После мех.стар	
1	**295**	**423**	**34,50**	**-**	**-**	**-**	**-**	**U -20 176.0**	**118,0**	**уд**
	-	**-**	**-**	**-**	**-**	**-**	**-**	**186.0**	**102,0**	**-**
	-	**-**	**-**	**-**	**-**	**-**	**-**	**146.0**	**139,0**	**-**
	-	**-**	**-**	**-**	**-**	**-**	**-**	**181.0**	**113,0**	**-**

Україна №12 "МЕТІНВЕСТ-СМЦ" ідентифікаційний код 32036829

Кол - во штук в пачке
Прочие свойства **4 деревянные подкладки 0,04x0,10x2,8м массой 0,030тн. Общий вес с учетом сепарации - 67,292тн.**
Примечание **Категория 5.**
Цветная маркировка

Товар соответствует указанным в данном сертификате качества стандартам, техническим условиям и требованиям контракта.

Отдел технического контроля Для сертификатов
Дата **04.02.2021**
Подпись контролёра
Павлюс О.Г.

АВ метал груп

Україна
Ukraine

СЕРТИФІКАТ ЯКОСТІ
QUALITY CERTIFICATE

UA.PN.191.1460-22

Офис: 49000, Днепропетровская область, г. Днепр, ул Шолома-Алейхема,5 тел: +38 (056) 790-73-00; 790-01-22, avmg@avmg.com.ua

Office: 49000 , Dnepropetrovsk region, Dnepr, street Sholem Aleichem , 5 Tel: +38 (056) 790-73-00 ; 790-01-22, avmg@avmg.com.ua

Сертифікат № Certificate №	**160**	**Дата Date**	**23.02.22р.**	**Контракт №/ інвойс / № наряд-замовлення Contract №**	**№ 18022022 від 18.02.2022**
Замовник Customer	**ТОВ «АВ метал груп»**	**Одержувач Receiver**	**SRL "METALICA-ZUEV"**	**Вагон/ Автомобіль RW – Car / Car**	AP 3681 IM / AP 7651 XO
Найменування товару Description of goods	**Труби сталеві електрозварні Electric welded steel pipes**			**Стандарт Standards**	**ДСТУ 8943:2019**

Марка сталі/плавка Steel Grade/ Heat №	**Номер партії Test Lot №**	**Розмір труб, мм Pipe size, mm**				**Кількість Quantity, pcs**				
		Група	**Розмір Size**	**Товщина стінки Wall thickness**	**Довжина Length**	**Кількість пакетів**	**Шт Pcs**	**Метри Meters**	**Нетто, т Net, t**	**Брутто, т Gross, t**
Ст 2ПС/130313	41253	В	Дн 57	3,5	6000	8	831	4986	22,090	22,098
					РАЗОМ	8	831	4986	22,090	22,098

Номер плавки Heat №	**№ сертифіката постачальника № certificate provider**	**Хімічний склад % Chemical Composition %**								**Механічні властивості Mechanical properties**		**Технологічні властивості Technological propertics**				
		C x100	**Mn x100**	**Si x100**	**S x1000**	**P x1000**	**Cr x100**	**Ni x100**	**Cu x100**	**Межа міцності Tensile Strength кгс/мм²**	**Межа плинності Yield Strenght кгс/мм²**	**Відносне подовження Elongation %**	**Сплющув. Flattening**	**Роздача Distribution**	**Неруйнівний контроль Unbrakable control**	**Гідровипробування Hydro Test**
130313	503298	14	37	2,2	30	15	4	2	1	40,7	29,9	36	Витрим.	Витрим.	Витрим.	

Примітка Remark

Підтверджуємо, що продукція зазначена в цьому сертифікаті випробувана і відповідає умовам контракту.
It is hereby certified and products listed in this certificate tested and comply with contracts terms.

Відділ контролю Control department

ВТК

TEAM METIZ

Грузоотправитель
ООО «ТИМ-МЕТИЗ»
50000, Украина
Днепропетровская обл.
г. Кривой Рог
проспект Почтовый, д. 60 к. 41
Тел/факс: (056) 404-12-70
(056) 404-12-69

СЕРТИФИКАТ КАЧЕСТВА № 1955 от 26.05.2021 г.

Грузополучатель: **ООО «Металика-Зуев»**
Адрес: *Молдова, MD-2028, Кишинев, ул. Г.Асаки, 62-22*

Наименование продукции	Стандарт	Вид упаковки
Проволока стальная общего назначения термически обработанная без покрытия (О-Ч)	ГОСТ 3282-74	Мотки весом 60-100 кг

Показатели качества продукции

№	Условное обозначение Code of wire	Марка стали Steel grade	Диаметр, мм/ Diameter, mm		Механические свойства/ Mechanical properties			Количество мест Quantity of coils	Вес, кг Weight, kg	
			Номинальный Nominal	Фактический Factual	Разрывое усилие, кН Breaking strength, kN	Временное сопротивление Н/мм2 Tensile strength, N/mm^2	Относительное удлинение, % Elongation, %		Вес нетто, т Net, ton	Вес брутто, т Gross, ton
1	Дріт/Wire 1,20 О-Ч	SAE 1006	1,20	1,18-1,24	0,36-0,40	303-366	20-23	53	15,006	15,059
2	Дріт/Wire 3,00 О-Ч		3,00	2,95-3,03	1,97-2,56	306-365	22-24	14	7,493	7,507
	Усього/Total							**67**	**22,499**	**22,566**

Этим сертификатом подтверждается, что качество проволоки, указанной в этом сертификате, соответсвует требованиям ГОСТ 3282-74 .

Продукция изготовлена из стали, химический состав которой приведен ниже.

Марка стали	Химический состав, %																	
SAE 1006	C	Mn	Si	S	P	Cr	Ni	Cu	N	Ti	As	B	Al	V	Mo	W	Co	Ceq
	0,060	0,423	0,043	0,018	0,018	0,013	0,011	0,013	0,0054	<0,005	<0,005	0,0004	0,008	<0,005	0,022	<0,020	--	0,14

Продукция изготовлена из стали с радиационными параметрами, которые приведены ниже

Радиационные параметры				
Ra	*Th*	*K*	*A (sum)*	*Мощность эквивалентной дозы гамма излучения*
<50	*<50*	*<300*	*<141*	*<0.08*

Сертификат качества составил: технолог ООО «ТИМ-МЕТИЗ» **Горяная Л.К.**

Публічне акціонерне товариство "Запорізький металургійний комбінат "Запоріжсталь"
Public Joint Stock Company "Integrated Iron and Steel Works "Zaporizhstal"

Україна 69008 м.Запоріжжя Південне шосе,72
факс +38 (061) 213-18-58

UKRAINE 69008 Zaporizhzhya 72, Pivdenne Shose
Fax +38 (061) 213-18-58

СЕРТИФІКАТ ЯКОСТІ / QUALITY CERTIFICATE № 534538 від / date 13.11.2022

Одержувач / consignee

Філія ТОВ "МЕТІНВЕСТ-СМЦ" у м.Одеса
65031 м. Одеса, Одеська обл. дор.Новомосковская, б.23/1
станція призначення ОДЕСА-ЗАСТАВА 1 (Од.ЗАЛ.)

Замовлення комбінату № Manufacturer's works order
2022 **971000-0972**
Контракт № / Contract
МЗК-1327342/10/20/СМЦ-С
від date 06.10.2020

Вид свідотцтва про випробування
Type of inspection document
EN 10204 3.1

Вагон № Freight car: **67864082**

Вид вантажмісць Type of packages: пачки / packs
Кількість місць/Number of packages: 4

Найменування та код товару / Description and code of goods

97100 Прокат товстолистовий г/к з вуглецевої сталі звичайної якості

НД на продукцію: хімсклад / Specification forms and record
ДСТУ 8803:2018
ДСТУ 2651:2005/ГОСТ 380-2005
ДСТУ 8540:2015

Маркування продукції: ГАРЯЧЕКАТАНИЙ ЛИСТ HOT ROLLED STEEL SHEETS

Результати випробувань / Result of trial

№ п/ч Item №	№ плавки Heat №	№ партії Batch №	Марка Grade	Категорія Category	Група міцності Group of strength	Розміри, мм Dimensions, mm			Кількість товару Number of goods	Сорт	Маса, т Mass, tons		
						Товщина Thickness	Ширина Width	Довжина Length			брутто gross	брутто2 gross2	нетто net
1	122362	25341-6	СТ3ПС	5		4,00	1250	2500	66	1	6,755		6,740
2	122362	25341-8	СТ3ПС	5		4,00	1250	2500	65	1	6,705		6,690
3	122362	25341-10	СТ3ПС	5		4,00	1250	2500	62	1	6,395		6,380
4	122362	25341-13	СТ3ПС	5		4,00	1250	2500	67	1	6,960		6,945
									Разом:		**26,815**		**26,755**

Даними цього сертифікату підтверджується, що продукція випробувана і відповідає стандартам якості, діючим в Україні, технічним умовам і погодженим умовам замовлення контракту
It is hereby certified that the quality of goods mentioned in this shipping document is in conformity with the standards in the Ukraine, specifications and goods may be exported

№ п ч Item №	№ позиції замовлення Order refence №	Ознака обробки Sign treatment	Шифр кальк. групи Group code	Форма розкрою Pattern cutting	Якість поверхні Surface quality	Точність прокатки / виготовлення Rolling accuracy / manufacturing	Категорія витяжки Category of drawing	Площинність Flatness	Характер кромки Trim of edge	Гарантія зварювання Weldability	Оздоблення поверхні Surface finish	Інші характеристики Other features
1-4	1	Б/ТРАВЛ	503	4		Б		ПН	НО	СВ		

Хімічний склад, % Composition. %

№ п/ч Item №	№ плавки Heat №	C x100	Mn x100	Si x100	S x1000	P x1000	Cr x100	Ni x100	Cu x100	As x100	N2 x1000	Al x100	Ti x100	Mo x1000	CEV %	V x1000	B x10000
1-4	122362*	20	44	1.7	24	31	5	1	1	8	8		0.1	4	0.286	4	

Механічні і технологічні властивості Mechanical and technological properties

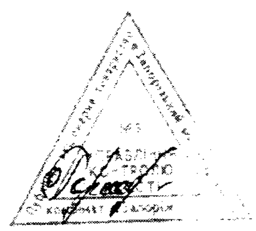
№ п ч Item №	Розміри зразка D.m of specimen Товщина Thickness	 Ширина Width	Місце відб.пр. Sample Location	Напрямок відб.пр. Dir. of test pi	Тимчасовий опір Tensile strength	Границя плинності Yield point	Відносне подовження Elongation	Вигин Bend	Твердість Hardness	Глибина сферич. лунки Erickson	Ударна в'язкість Impact toughness KCU t	 KCU	 KCV t	 KCV	Після механічного старіння After mech. ageing t		Номер зерна фериту Grain size	Декарбонізація Decarburization	Шорсткість, Roughness (RA)	Цементит Cementite	Метод випробувань Testing method
	mm	mm	S.E	L.T	кгс/мм2	кгс/мм2	%			мм	t	кгс*м/см2	t	кгс*м/см2	t	кгс*м/см2		%	мкм		
1-4	4.00	1250			47.0	32.0	30.0	уд			-20	10.6	20	13.8	20	9.8					руйн
	4.00	1250									-20	10.6	20	13.9	20	9.4					руйн

"S-початок смуги strip start; E-кінець смуги strip end; L-поздовжнє/longitudinal; T-поперечне/Transverse"

ПРИМІТКА: КОНТРОЛЬНА СТРІЧКА ЗЕЛЕНА

ЗАУВ.Х/А: плавка з індексом П продута аргоном Розкислена Al

Штамп, підпис відповід. особи
Stamp, signature of the person in charge



Достовірність сертифікату можна перевірити в реєстрі сертифікатів комбінату, на сайті http: metinvest.io шляхом введення номера сертифікату і шифру, розміщенного на зворотньому боці у графі "Штамп.підпис експерта", або шляхом прочитування QR-коду і переходу по прямому посиланню на сайт. В разі виявлення факту підробки сертифікатів просимо Вас повідомити про це на електронну адресу otk@zaporizhstal.com
The authenticity of the certificate can be checked in the register of the plant's certificates on the site http: metinvest.io by entering the certificate number and the cipher placed on the reverse side in the "Stamp. expert signature" cell, or by reading the QR code and go to a direct link to the site. In case of detection of the fact of forgery of certificates, we kindly ask you to inform about this to the email address otk@zaporizhstal.com

1241230262

Даний сертифікат якості підписаний електронним цифровим підписом контролера ВТК. Перевірити валідність документа можна на державному сайті https: czo.gov.ua verify
This quality certificate is signed by the electronic digital signature of the controller of the technical control department. You can check the validity of the document on the state website https: czo.gov.ua/verify

TEST CERTIFICATE

EN 10204 : 2004 TYPE 2.2

EMG EURASIA METAL TRADING

EMG Eurasia Metal GmbH
Stadttor 1 • 17. Stock • D-40219 • Düsseldorf

"Globale Beschaffung & Lösungen"
"Global Procurement & Solutions"

CUSTOMER: "METALICA-ZUEV" S.R.L.
P/INVOICE NO: 202310030
P/INVOICE DATE: 13.02.2023
DIMENSIONS , mm:
STEEL GRADE & SPECIFICATION: S235JR DIN EN10051
TYPE OF PRODUCT, DESCRIPTION: HOT ROLLED STEEL SHEETS/PLATES

DATE: 13.02.2023
REPORT NO: 82.413

HEAT NO	AMOUNT (KG)	Grade	DIMENSION (MM)	P.S or P.P	MECHANICAL PROPERTIES															CHEMICAL COMPOSITION , LADLE ANALYSIS%									
					TENSILE TEST				BEND TEST	BH VAL.	r VAL. R90 (Plastic Strain Ratio)	n VAL. N90 (Strain Hardening Exponent)	HARD NESS	IMPACT TEST , joule POSITION :					HIGH. TEMP . °C											
					SAM. POS..	YIELD STRENGTH	TENSILE STRENGTH	% EL.						1	2	3	ORT.	SIC." C	YI.STR. N/MM2	C %	MN %	P %	S %	SI %	TI %					
ND34225		S235JR	3x1000x2000			323	410	39,8	OK											0,070	0,354	0,004	0,005	0,010	0,000					

WE (SUPPLIER) HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE BY THE BASIC OXYGEN PROCESS AND TESTED IN ACCORDANCE WITH THE RULES OF DIN EN 10346:2015 AND STATED GRADES BY MANUFACTURER.

EMG EURASIA METAL GMBH Stadttor 1, 17. Stock D- 40219 Düsseldorf GERMANY

CONFIRMATION AND APPROVAL

QC LOG S,M&D

NOTE: T : Top, M : Middle, E : End , T : Transverse , L : Longitudinal , P.S : Piece of Slice , P.P : Piece of Plate

Contract/Контракт №	8Z-2020
Date/от	03.01.2020
Specification/Спецификация	80
Order/Отпуск	5000633770

ArcelorMittal

Car/Вагон	63285803
Car customs/Повагонный заказ	7002435670
Outgoing delivery/Исходящая поставка	8002449942
Export licence/Разрешение на вывоз	Не требуется

CERTIFIED QUALITY MANAGEMENT SYSTEM V COMPANY
Standard: ISO 9001:2015

СЕРТИФИКАТ ПРИЕМКИ № / INSPECTION CERTIFICATE No 8002449942

EN 10204-3.1

Manufacturer:	PJSC "ArcelorMittal Kryvyi Rih"	Производитель:	ПАО "АРСЕЛОРМИТТАЛ КРИВОЙ РОГ"
Buyer:	S.R.L. "METALICA-ZUEV"	Покупатель:	ООО "МЕТАЛИКА-ЗУЕВ"
Destination country:	The Republic of Moldova	Страна назначения:	Республика Молдова
Consignee:	S.R.L. "METALICA-ZUEV" 62-22, G. Asaki str., Kishineu MD-2028 The Republic of Moldova OKPO 38730480	Грузополучатель:	ООО "МЕТАЛИКА-ЗУЕВ" Республика Молдова МД-2028 г. Кишинэу, ул. Г. Асаки, 62-22, ОКПО 38730480

Description of goods/Наименование товара: **КАТАНКА ИЗ УГЛЕРОДИСТОЙ СТАЛИ / WIRE RODS OF CARBON STEEL**

Standards/НТД: **ASTM A510M-06**
ДСТУ 3058-95 (ГОСТ 7566-94)

№	№ плавки Heat No	№ Партии Batch	Марка Grade	Тол-на/Д-р,мм THKNS/diam,mm	Вид пост. по длине Shipment by length	Длина,мм Length,mm	Ед. Изм. Unit	Кол-во Quantity	Масса нетто,кг Net weight, kg
1	250634	01865	SAE 1006	5,5	МОТОК		мотки/coils	16	32449
2	250633	01866	SAE 1006	5,5	МОТОК		мотки/coils	12	24335
3	220556	01867	SAE 1006	5,5	МОТОК		мотки/coils	1	1827
								29	**58611.00**

Chemical composition of steel, %/Химический состав стали, %

№	C	Mn	Si	S	P	Cr	Ni	Cu	N	Ti	As	B	Al	V	Mo	Nb	W	Co	Ceq
1.	0.059	0.356	0.056	0.02	0.016	0.035	0.033	0.033	0.005	<0.005	0.002	0.0001	0.002	0.001	0.004	0.001	-	0.002	0.13
2.	0.055	0.389	0.075	0.018	0.013	0.035	0.024	0.04	0.0048	<0.005	0.002	0.0001	0.002	0.001	0.004	0.002	-	0.002	0.13
3.	0.065	0.403	0.082	0.015	0.017	0.038	0.03	0.036	0.0053	<0.005	0.002	0.0001	0.002	0.002	0.004	0.002	-	0.002	0.15

Mechanical properties/Механические свойства

№	Предел текучести Yield Strength,Re Н/мм2 (N/mm2)	Временное сопротивление Tensile Strength,Rm Н/мм2 (N/mm2)	Удлинение Elongation %	Изгиб Bend	Сужение Reduction of area %
1.	299/293/288	415/404/401	26,0/24,3/25,3	ок/ок/ок	75/74/77
2.	270/276/270	379/385/381	24,7/25,5/25,1	ок/ок/ок	74/76/75
3.	315/289/283	392/384/382	25,5/25,2/24,8	ок/ок/ок	73/76/76

Radiation parametrs (Bq/Kg)/Радиационные параметры (Бк/кг)

Ra	Th	K	A(sum)
<50	<50	<300	<141

Material EDR (μSv/hr)/МЭД материала (мкЗв/ч)

<0,08

Class of application/Класс применения - 1

Примечание:Настоящим удостоверяем, что указанная выше продукция была испытана и соответствует условиям заказа по контракту.
Remarks: We hereby certify that the material described above has been tested and complies with the terms of the order contract.
Внимание: не допускайте использование обвязок для застроповки груза при перегрузочных работах.
Caution: the use of bindings for attaching slings to a cargo during transshipment is not permissible.

Маркировка / Marking

Примечание / Note

Подписи: / Signatures:

Приємство «СТІЛСЕРВІС»
ТЕХНІЧНИЙ ТА ВХІДНИЙ КОНТРОЛЬ
ТВК-2

09.02.2022 Лист / Sheet 1 Листов / Sheets 1

ракт №	8Z-2020
Спецификация	03.01.2020 79 5000633749

ArcelorMittal

Car/Вагон	63991913
Car customs/Повагонный заказ	7002436009
Outgoing delivery/Исходящая поставка	8002450234
Export licence/Разрешение на вывоз	Не требуется

CERTIFIED QUALITY MANAGEMENT SYSTEM V COMPANY
Standard: ISO 9001:2015

ФИКАТ ПРИЕМКИ № 8002450234
TION CERTIFICATE No

94-3.1

Manufacturer:	PJSC "ArcelorMittal Kryvyi Rih"	Производитель:	ПАО "АРСЕЛОРМИТТАЛ КРИВОЙ РОГ"
Buyer:	S.R.L. "METALICA-ZUEV"	Покупатель:	ООО "МЕТАЛИКА-ЗУЕВ"
Destination country:	The Republic of Moldova	Страна назначения:	Республика Молдова
Consignee:	S.R.L. "METALICA-ZUEV" 62-22, G. Asaki str., Kishineu MD-2028 The Republic of Moldova ОКРО 38730480	Грузополучатель:	ООО "МЕТАЛИКА-ЗУЕВ" Республика Молдова МД-2028 г. Кишинэу, ул. Г. Асаки, 62-22, ОКПО 38730480

Description of goods/Наименование товара	Standards/НТД
СТАЛЬ ДЛЯ УСИЛЕНИЯ БЕТОНА - АРМАТУРНАЯ СТАЛЬ, ПОДДАЮЩАЯСЯ СВАРКЕ / STEEL FOR THE REINFORCEMENT OF CONCRETE - WELDABLE REINFORCING STEEL Класс B500B	LST EN 10080:2005 ДСТУ 3058-95 (ГОСТ 7566-94)

№	№ плавки Heat No	№ Партии Batch	Марка Grade	Тол-на/Д-р,мм THKNS/diam,mm	Вид пост. по длине Shipment by length	Длина,мм Length,mm	Ед. Изм. Unit	Кол-во Quantity	Масса нетто,кг Net weight, kg
				8	М/ДЛ	12000	пачки/bundles	10	27420
1	260711	32301		8	М/ДЛ	12000	пачки/bundles	14	39810
2	260711	32302						24	67230

Chemical composition of steel, %/Химический состав стали, %

№	C	Mn	Si	S	P	Cr	Ni	Cu	N	Ti	As	B	Al	V	Mo	Nb	W	Co	Ceq
1.	0.19	0.479	0.045	0.034	0.011	0.02	0.014	0.02	0.0053	0.005	0.005	0.0004	0.005	0.005	0.01	-	-	-	0.28
2.	0.19	0.479	0.045	0.034	0.011	0.02	0.014	0.02	0.0053	0.005	0.005	0.0004	0.005	0.005	0.01	-	-	-	0.28

Mechanical properties/Механические свойства

№	Предел текучести Yield Strength,Re МПа (MPa)	Временное сопротивление Tensile Strength,Rm МПа (MPa)	Соотношение Ratio Rm/Re	Полное относительное удлинение при максимальной нагрузке Persentage total elongation at maximum force(Agt)	Изгиб с разгибом /Rebendtest	Шаг ребра Rib spacing, c (mm)	Высота ребра Rib height, h (mm)	Высота продольного ребра, мм Longitudinal rib height, mm	Наклон ребра, α Transverse rib flank inclination, α	Относительная площадь ребра, fr Relative rib area, fr	Масса пог. метра, кг/м Mass per metre,kg/m
1.	572/562/587	636/628/638	1.11/1.12/1.09	7.8/7.5/8.3	ок	5.35	0.72	0.20	58	0.080	0.397
2.	574/576/575	638/634/632	1.11/1.10/1.10	8.0/8.3/7.9	ок	5.40	0.75	0.23	57	0.078	0.403

Radiation parametrs (Bq/Kg)/Радиационные параметры (Бк/кг)			
Ra	Th	K	A(sum)
<50	<50	<300	<141

Material EDR (μSv/hr)/МЭД материала (мкЗв/ч)
<0,08
Class of application/Класс применения - 1

Примечание:Настоящим удостоверяем, что указанная выше продукция была испытана и соответствует условиям заказа по контракту.
Remarks: We hereby certify that the material described above has been tested and complies with the terms of the order contract.
Внимание: не допускайте использование обвязок для застроповки груза при перегрузочных работах.
Caution: the use of bindings for attaching slings to a cargo during transshipment is not permissible.

Маркировка Marking	Торцевые стороны пачек окрашены краской.4 ЯРЛЫКА НА АНГЛИЙСКОМ ЯЗЫКЕ На каждой пачке должно быть по 4 пластиковых ярлыка (два ярлыка крепится в торце пачки, два ярлыка крепится на увязку сверху пачки),которые содержат следующую информацию:- Размер- Номер плавки - Номер партии- Класс- Номер контракта- Страна назначения - Производитель- Прокатная маркировка
Примечание Note	

Подпись: Signature:
Комунальне підприємство «СТІЛ СЕРВІС»
ТЕХНІЧНИЙ ТА ВХІДНИЙ КОНТРОЛЬ

10.02.2022 Лист 1 Sheet Листов 1 Sheets

Contract/Контракт №	8Z-2020
Date/от	03.01.2020
Specification/Спецификация	75
Order/Отпуск	5000631775

ArcelorMittal

Car/Вагон	64500838
Car customs/Повагонный заказ	7002429468
Outgoing delivery/Исходящая поставка	8002444382
Export licence/Разрешение на вывоз	Не требуется

СЕРТИФИКАТ ПРИЕМКИ № INSPECTION CERTIFICATE No 8002444382

EN 10204-3.1

CERTIFIED QUALITY MANAGEMENT SYSTEM COMPANY
Standard: ISO 9001:2015

Manufacturer:	PJSC "ArcelorMittal Kryvyi Rih"	Производитель:	ПАО "АРСЕЛОРМИТТАЛ КРИВОЙ РОГ"
Buyer:	S.R.L. "METALICA-ZUEV"	Покупатель:	ООО "МЕТАЛИКА-ЗУЕВ"
Destination country:	The Republic of Moldova	Страна назначения:	Республика Молдова
Consignee:	S.R.L. "METALICA-ZUEV" 62-22, G. Asaki str., Kishineu MD-2028 The Republic of Moldova OKPO 38730480	Грузополучатель:	ООО "МЕТАЛИКА-ЗУЕВ" Республика Молдова МД-2028 г. Кишинэу, ул. Г. Асаки, 62-22, ОКПО 38730480

Description of goods/Наименование товара

СТАЛЬ ДЛЯ УСИЛЕНИЯ БЕТОНА - АРМАТУРНАЯ СТАЛЬ, ПОДДАЮЩАЯСЯ СВАРКЕ / STEEL FOR THE REINFORCEMENT OF CONCRETE - WELDABLE REINFORCING STEEL
Класс B500B

Standards/НТД
LST EN 10080:2005
ДСТУ 3058-95 (ГОСТ 7566-94)

№	№ плавки Heat No	№ Партии Batch	Марка Grade	Тол-на/Д-р,мм THKNS/diam,mm	Вид пост. по длине Shipment by length	Длина,мм Length,mm	Ед. Изм. Unit	Кол-во Quantity	Масса нетто,кг Net weight, kg
1	230425	21561		12	М/ДЛ	12000	пачки/bundles	5	20350
2	240597	21557		12	М/ДЛ	12000	пачки/bundles	1	3680
3	210560	21370		12	М/ДЛ	12000	пачки/bundles	1	4250
4	210560	21369		12	М/ДЛ	12000	пачки/bundles	1	4120
5	210560	21367		12	М/ДЛ	12000	пачки/bundles	5	21060
6	210560	21368		12	М/ДЛ	12000	пачки/bundles	3	12940
								16	**66400**

Chemical composition of steel, %/Химический состав стали, %

№	C	Mn	Si	S	P	Cr	Ni	Cu	N	Ti	As	B	Al	V	Mo	Nb	W	Co	Ceq
1.	0.21	0.5	0.065	0.015	0.011	0.022	0.015	0.026	0.0055	0.005	0.005	0.0004	0.004	0.005	0.01	-	-	-	0.31
2.	0.17	0.432	0.043	0.016	0.013	0.026	0.025	0.041	0.0056	0.005	0.005	0.0004	0.005	0.005	0.01	-	-	-	0.26
3.	0.18	0.57	0.06	0.025	0.035	0.025	0.011	0.012	0.0056	0.005	0.005	0.0004	0.005	0.005	0.01	-	-	-	0.29
4.	0.18	0.57	0.06	0.025	0.035	0.025	0.011	0.012	0.0056	0.005	0.005	0.0004	0.005	0.005	0.01	-	-	-	0.29
5.	0.18	0.57	0.06	0.025	0.035	0.025	0.011	0.012	0.0056	0.005	0.005	0.0004	0.005	0.005	0.01	-	-	-	0.29
6.	0.18	0.57	0.06	0.025	0.035	0.025	0.011	0.012	0.0056	0.005	0.005	0.0004	0.005	0.005	0.01	-	-	-	0.29

Mechanical properties/Механические свойства

№	Предел текучести Yield Strength,Re МПа (MPa)	Временное сопротивление Tensile Strength,Rm МПа (MPa)	Соотношение Ratio Rm/Re	Полное относительное удлинение при максимальной нагрузке Persentage total elongation at maximum force(Agt)	Изгиб с разгибом /Rebendtest	Шаг ребра Rib spacing, c (mm)	Высота ребра Rib height, h (mm)	Высота продольного ребра, мм Longitudinal rib height, mm	Наклон ребра, α Transverse rib flank inclination, α	Относительная площадь ребра, fr Relative rib area, fr	Масса пог. метра, кг/м Mass per metre,kg/m
1.	591/569/569	678/664/660	1,15/1,17/1,16	8,3/8,0/8,2	ок	6.70	1.05	0.46	56	0.089	0.861
2.	585/585/580	652/667/649	1,11/1,14/1,12	7,9/8,2/7,6	ок	6.70	1.09	0.47	57	0.090	0.855
3.	593/610/586	672/693/661	1,13/1,14/1,13	8,8/8,9/8,5	ок	6.90	1.14	0.56	64	0.092	0.878
4.	626/576/593	693/658/667	1,11/1,14/1,13	8,6/8,8/8,9	ок	6.75	1.16	0.56	65	0.092	0.873
5.	571/581/610	650/659/681	1,14/1,13/1,12	8,5/8,7/8,8	ок	6.80	1.15	0.55	65	0.090	0.871
6.	601/614/596	673/681/679	1,12/1,11/1,14	8,5/8,4/8,4	ок	6.85	1.14	0.56	64	0.092	0.872

Radiation parametrs (Bq/Kg)/Радиационные параметры (Бк/кг)

Ra	Th	K	A(sum)
<50	<50	<300	<141

Material EDR (μSv/hr)/МЭД материала (мкЗв/ч)

<0,08

Class of application/Класс применения - 1

Примечание:Настоящим удостоверяем, что указанная выше продукция была испытана и соответствует условиям заказа по контракту.
Remarks: We hereby certify that the material described above has been tested and complies with the terms of the order contract.
Внимание: не допускайте использование обвязок для застроповки груза при перегрузочных работах.
Caution: the use of bindings for attaching slings to a cargo during transshipment is not permissible.

Маркировка Marking	Торцевые стороны пачек окрашены краской. 4 ЯРЛЫКА НА АНГЛИЙСКОМ ЯЗЫКЕ На каждой пачке должно быть по 4 пластиковых ярлыка (два ярлыка крепится в торце пачки, два ярлыка креп= ится на увязку сверху пачки),которые содержат следующую информацию:Размер Номер плавки Номер партии Класс Номер контракта Страна назначения Производитель Прокатная маркировка	Подписи: Signatures:
Примечание Note		31.01.2022 Лист 1 Sheet / Листов 1 Sheets

ТОВ "ПІДПРИЄМСТВО «СТІЛ СЕРВІС»" ТЕХНІЧНИЙ ТА ВХІДНИЙ КОНТРОЛЬ ТОК - 4

Safety Data Sheet

according to Regulation (EC) No 1907/2006

NORD-TEST Reiniger U 87 Spray

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

1.1. Product identifier

NORD-TEST Reiniger U 87 Spray

Further trade names

121.300.101

UFI: 2PJ5-JX6G-JQ68-WYX8

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

Use of the substance/mixture

Washing and cleaning products (including solvent based products)

1.3. Details of the supplier of the safety data sheet

Company name:	Helling GmbH	
Street:	Spoekerdamm 2	
Place:	D-25436 Heidgraben	
Telephone:	+49-4122-922-0	Telefax: +49-4122-922-201
e-mail:	info@helling.de	
Internet:	www.helling.de	

1.4. Emergency telephone number:

Emergency CONTACT (24-Hour-Number): GBK GmbH +49 (0)6132-84463

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Hazard categories:
Aerosols: Aerosol 1
Serious eye damage/eye irritation: Eye Irrit. 2
Hazard Statements:
Extremely flammable aerosol.
Pressurised container: May burst if heated.
Causes serious eye irritation.

2.2. Label elements

Regulation (EC) No 1272/2008

Signal word: Danger

Pictograms:

Hazard statements

H222	Extremely flammable aerosol.
H229	Pressurised container: May burst if heated.
H319	Causes serious eye irritation.

Precautionary statements

P102	Keep out of reach of children.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211	Do not spray on an open flame or other ignition source.
P251	Do not pierce or burn, even after use.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P271	Use only outdoors or in a well-ventilated area.

P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P410+P412	Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
64-17-5	ethanol, ethyl alcohol			75 - 85 %
	200-578-6	603-002-00-5	01-2119457610-43	
	Flam. Liq. 2, Eye Irrit. 2; H225 H319			
106-97-8	butane			10 - 16 %
	203-448-7	601-004-00-0	01-2119474691-32	
	Flam. Gas 1; H220			
74-98-6	propane			4 - 8 %
	200-827-9	601-003-00-5	01-2119486944-21	
	Flam. Gas 1; H220			

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

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
64-17-5	200-578-6	ethanol, ethyl alcohol	75 - 85 %
	inhalation: LC50 = 95,6 mg/l (vapours); dermal: LD50 = > 2000 mg/kg; oral: LD50 = 10470 mg/kg		
106-97-8	203-448-7	butane	10 - 16 %
	inhalation: LC50 = 658 mg/l (dusts or mists)		
74-98-6	200-827-9	propane	4 - 8 %
	inhalation: LC50 = > 20 mg/l (vapours)		

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

First aider: Pay attention to self-protection!

After inhalation

Provide fresh air. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). If victim is at risk of losing consciousness, position and transport on their side.

After contact with skin

Wash with plenty of water. Change contaminated clothing.

After contact with eyes

If product gets into the eye, keep eyelid open and rinse immediately with large quantities of water, for at least 5 minutes. Subsequently consult an ophthalmologist.

After ingestion

Rinse mouth immediately and drink plenty of water. Do NOT induce vomiting. Call a physician immediately.

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

Following inhalation: Headache. drowsiness. Dizziness. unconsciousness.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO2). Foam. Extinguishing powder. Atomized water.
Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

High power water jet.

5.2. Special hazards arising from the substance or mixture

Vapours may form explosive mixtures with air.
Heating causes rise in pressure with risk of bursting.
In case of fire may be liberated: Carbon monoxide Carbon dioxide.

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

Additional information

Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water. Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Wear personal protection equipment.
Provide adequate ventilation. Remove all sources of ignition.
Wear breathing apparatus if exposed to vapours/dusts/aerosols.
Remove persons to safety.

6.2. Environmental precautions

Do not allow uncontrolled discharge of product into the environment. Explosion hazard. Suppress gases/vapours/mists with water spray jet.

6.3. Methods and material for containment and cleaning up

Other information

Ventilate affected area.
Flammable liquids: Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

6.4. Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes.

Advice on protection against fire and explosion

Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. Vapours may form explosive mixtures with air.

Advice on general occupational hygiene

Remove contaminated, saturated clothing immediately. Protect skin by using skin protective cream. After work, wash hands and face. When using do not eat or drink. Keep away from food, drink and animal feedingstuffs. Do not breathe gas/vapour/aerosol. Avoid contact with eyes and skin.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Keep in a cool, well-ventilated place.
Keep away from sources of ignition - No smoking. Protect from direct sunlight. Heating causes rise in pressure with risk of bursting.

Hints on joint storage

Do not store together with: Oxidizing agents.

7.3. Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m³	fibres/ml	Category	Origin
106-97-8	Butane	600	1450		TWA (8 h)	WEL
		750	1810		STEL (15 min)	WEL
64-17-5	Ethanol	1000	1920		TWA (8 h)	WEL

DNEL/DMEL values

CAS No	Substance			
DNEL type		Exposure route	Effect	Value
64-17-5	ethanol, ethyl alcohol			
Consumer DNEL, long-term		oral	systemic	87 mg/kg bw/day
Consumer DNEL, long-term		dermal	systemic	206 mg/kg bw/day
Worker DNEL, long-term		dermal	systemic	343 mg/kg bw/day
Consumer DNEL, acute		inhalation	local	950 mg/m³
Consumer DNEL, long-term		inhalation	systemic	114 mg/m³
Worker DNEL, acute		inhalation	local	1900 mg/m³
Worker DNEL, long-term		inhalation	systemic	950 mg/m³

PNEC values

CAS No	Substance	
Environmental compartment		Value
64-17-5	ethanol, ethyl alcohol	
Freshwater		0,96 mg/l
Marine water		0,79 mg/l
Freshwater sediment		3,6 mg/kg
Marine sediment		2,9 mg/kg
Micro-organisms in sewage treatment plants (STP)		580 mg/l
Soil		0,63 mg/kg

Additional advice on limit values

DNEL/DMEL and PNEC values: No data available

8.2. Exposure controls


Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear eye/face protection.

Hand protection

Tested protective gloves are to be worn: Solvent-proof.
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.
Before using check leak tightness / impermeability.
Recommended protective gloves brand:
NBR (Nitrile rubber). Butyl rubber. FKM (fluororubber).
penetration time (maximum wearing period): > 8 h (DIN EN 374)
Protective gloves have to be replaced at the first sign of deterioration.

Skin protection

Body protection: not required.

Respiratory protection

With correct and proper use, and under normal conditions, breathing protection is not required.

Environmental exposure controls

No information available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Aerosol	
Colour:	colourless	
Odour:	Alcohol	
Melting point/freezing point:		not applicable
Boiling point or initial boiling point and boiling range:		not applicable
Flammability		

Gas:	Extremely flammable.
Lower explosion limits:	1,4 vol. %
Upper explosion limits:	10,8 vol. %
Flash point:	not applicable
Auto-ignition temperature:	not determined
pH-Value:	not applicable
Viscosity / kinematic:	not determined
Water solubility:	completely miscible
Solubility in other solvents	
miscible with most organic solvents	
Partition coefficient n-octanol/water:	No data available
Vapour pressure: (at 20 °C)	3100 hPa
Density (at 20 °C):	0,784 - 0,786 g/cm³
Bulk density:	not applicable
Relative vapour density:	not determined

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

In use may form flammable/explosive vapour-air mixture.

Self-ignition temperature

Gas:	not determined

Oxidizing properties

Not oxidising.

Other safety characteristics

Evaporation rate:	not determined
Solvent content:	~70%
Viscosity / dynamic: (at 20 °C)	not determined

Further Information

Temperature of decomposition in °C: not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity

No risks worthy of mention.

10.2. Chemical stability

No risks worthy of mention.

10.3. Possibility of hazardous reactions

Heating causes rise in pressure with risk of bursting. Vapours may form explosive mixtures with air.

10.4. Conditions to avoid

Remove all sources of ignition. Keep away from heat.

10.5. Incompatible materials

Oxidizing agents, strong.

10.6. Hazardous decomposition products

Carbon monoxide Carbon dioxide.

SECTION 11: Toxicological information

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

Acute toxicity

Based on available data, the classification criteria are not met.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
64-17-5	ethanol, ethyl alcohol				
	oral	LD50 10470 mg/kg	Rat	IUCLID	
	dermal	LD50 > 2000 mg/kg	Rabbit		
	inhalation (4 h) vapour	LC50 95,6 mg/l	Rat	RTECS	
106-97-8	butane				
	inhalation (4 h) dust/mist	LC50 658 mg/l	Rat		
74-98-6	propane				
	inhalation (4 h) vapour	LC50 > 20 mg/l	Rat		

Irritation and corrosivity

Causes serious eye irritation.
Skin corrosion/irritation: Based on available data, the classification criteria are not met.
Prolonged/repetitive skin contact may cause skin defattening or dermatitis.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.
Vapours may cause drowsiness and dizziness.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

Endocrine disrupting properties

see section 12

SECTION 12: Ecological information

12.1. Toxicity

Based on available data, the classification criteria are not met.

CAS No	Chemical name						
	Aquatic toxicity	Dose		[h] | [d]	Species	Source	Method
64-17-5	ethanol, ethyl alcohol						
	Acute fish toxicity	LC50	8140 mg/l	96 h	Leuciscus idus (golden orfe)		
	Acute algae toxicity	ErC50	275 mg/l	72 h	Chlorella vulgaris		
	Acute crustacea toxicity	EC50	> 10000 mg/l	48 h	Daphnia magna	IUCLID	
74-98-6	propane						
	Acute fish toxicity	LC50	> 100 mg/l	96 h			
	Acute algae toxicity	ErC50	> 100 mg/l				
	Acute crustacea toxicity	EC50	> 100 mg/l	48 h			

12.2. Persistence and degradability

Easily biodegradable (concerning to the criteria of the OECD)

12.3. Bioaccumulative potential

No information available.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
64-17-5	ethanol, ethyl alcohol	-0,31
106-97-8	butane	2,89
74-98-6	propane	2,36

12.4. Mobility in soil

No information available.
Chemical Oyxgen Demand (COD): not determined
Biochemical oxygen demand (BOD): not determined

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

No information available.

Further information

Do not allow to enter into surface water or drains. The classification was carried out according to the calculation method.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation.
The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.
Recommendation:

List of Wastes Code - residues/unused products

160504 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; gases in pressure containers (including halons) containing hazardous substances; hazardous waste

List of Wastes Code - contaminated packaging

150104 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); metallic packaging

Contaminated packaging

Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:	UN 1950
14.2. UN proper shipping name:	AEROSOLS
14.3. Transport hazard class(es):	2
14.4. Packing group:	-
Hazard label:	2.1

Classification code:	5F
Special Provisions:	190 327 344 625
Limited quantity:	1 L
Excepted quantity:	E0
Transport category:	2
Tunnel restriction code:	D

Inland waterways transport (ADN)

14.1. UN number or ID number:	UN 1950
14.2. UN proper shipping name:	AEROSOLS
14.3. Transport hazard class(es):	2
14.4. Packing group:	-
Hazard label:	2.1

Classification code:	5F
Special Provisions:	190 327 344 625
Limited quantity:	1 L
Excepted quantity:	E0

Marine transport (IMDG)

14.1. UN number or ID number:	UN 1950
14.2. UN proper shipping name:	AEROSOLS
14.3. Transport hazard class(es):	2.1
14.4. Packing group:	-
Hazard label:	2.1

Special Provisions:	63, 190, 277, 327, 344, 381, 959
Limited quantity:	1000 mL
Excepted quantity:	E0
EmS:	F-D, S-U

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number:	UN 1950
14.2. UN proper shipping name:	AEROSOLS, FLAMMABLE
14.3. Transport hazard class(es):	2.1
14.4. Packing group:	-
Hazard label:	2.1

Special Provisions:	A145 A167 A802	
Limited quantity Passenger:	30 kg G	
Passenger LQ:	Y203	
Excepted quantity:	E0	
IATA-packing instructions - Passenger:		203
IATA-max. quantity - Passenger:		75 kg
IATA-packing instructions - Cargo:		203
IATA-max. quantity - Cargo:		150 kg

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

No information available.

14.7. Maritime transport in bulk according to IMO instruments

not determined

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 28, Entry 40

2004/42/EC (VOC): 100 % (784 g/l)

National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).

Water hazard class (D): 1 - slightly hazardous to water

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

section 1, 16

Abbreviations and acronyms

ADN: Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieure (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR: Accord européen sur le transport des marchandises dangereuses par Route

(European Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS: Chemical Abstracts Service
DNEL: Derived No Effect Level
EC50: medium effective concentration
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
ErC50: medium effective concentration (plants, algae)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
IATA: International Air Transport Association
IMDG: International Maritime Code for Dangerous Goods
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
NOEC: No observed effect concentration
PNEC: Predicted No Effect Concentration
RID: Réglement concernant le transport international ferroviaire de marchandises da

Key literature references and sources for data

General review and adaption to regulation (EC) 2020/878

Relevant H and EUH statements (number and full text)

H220	Extremely flammable gas.
H222	Extremely flammable aerosol.
H225	Highly flammable liquid and vapour.
H229	Pressurised container: May burst if heated.
H319	Causes serious eye irritation.

Further Information

Data sources: safety data sheets of raw materials

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.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)

Safety Data Sheet

according to Regulation (EC) No 1907/2006

NORD-TEST Kontrastrot U 88 Spray

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

1.1. Product identifier

NORD-TEST Kontrastrot U 88 Spray

Further trade names

Article no. (user):
121.300.201

UFI: 6TK5-4X5N-HQ6Q-HEH3

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

Use of the substance/mixture

Inspection of metals

1.3. Details of the supplier of the safety data sheet

Company name: Helling GmbH
Street: Spoekerdamm 2
Place: D-25436 Heidgraben
Telephone: +49-4122-922-0 Telefax: +49-4122-922-201
E-mail: info@helling.de
Internet: www.helling.de

1.4. Emergency telephone number:

Emergency CONTACT (24-Hour-Number): GBK GmbH +49 (0)6132-84463

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Hazard categories:
Aerosols: Aerosol 1
Skin corrosion/irritation: Skin Irrit. 2
Specific target organ toxicity - single exposure: STOT SE 3
Hazardous to the aquatic environment: Aquatic Chronic 2
Hazard Statements:
Extremely flammable aerosol.
Pressurised container: May burst if heated.
Causes skin irritation.
May cause drowsiness or dizziness.
Toxic to aquatic life with long lasting effects.

2.2. Label elements

Regulation (EC) No 1272/2008

Hazard components for labelling

Distillates (petroleum), hydrotreated light, Kerosine - unspecified

Signal word: Danger

Pictograms:

Hazard statements

H222	Extremely flammable aerosol.
H229	Pressurised container: May burst if heated.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.

H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

P102	Keep out of reach of children.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211	Do not spray on an open flame or other ignition source.
P251	Do not pierce or burn, even after use.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P302+P352	IF ON SKIN: Wash with plenty of water.
P410+P412	Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.
P501	Dispose of contents/container to industrial incineration plant.

Special labelling of certain mixtures

EUH208	Contains Solvent red dye, Solvent red Dye. May produce an allergic reaction.

Additional advice on labelling

The marking of aspiration hazard (Asp. Tox. 1; H304) is not required for aerosols and for containers with a sealed spray attachment (Regulation (EC) No 1272/20, Annex I 1.3.3).

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
64742-47-8	Distillates (petroleum), hydrotreated light, Kerosine - unspecified			35 - 45 %
	265-149-8	649-422-00-2	01-2119484819-18	
	Skin Irrit. 2, STOT SE 3, Asp. Tox. 1, Aquatic Chronic 2; H315 H336 H304 H411			
106-97-8	butane			30 - 40 %
	203-448-7	601-004-00-0	01-2119474691-32	
	Flam. Gas 1; H220			
74-98-6	propane			8 - 12 %
	200-827-9	601-003-00-5	01-2119486944-21	
	Flam. Gas 1; H220			
56358-09-9	Solvent red dye			0 - 0,75 %
	260-124-8			
	Skin Irrit. 2, Skin Sens. 1, STOT RE 2; H315 H317 H373			
57712-94-4	Solvent red Dye			0 - 0,75 %
	260-913-7			
	Skin Irrit. 2, Skin Sens. 1, STOT RE 2; H315 H317 H373			
	Hydrocarbons, C10, aromatics, > 1% naphthalene			0 - 0,65 %
	919-284-0		01-2119463588-24	
	Carc. 2, STOT SE 3, Asp. Tox. 1, Aquatic Chronic 2; H351 H336 H304 H411			
	Hydrocarbons, C10-C13, aromatics, > 1% naphthalene			0 - 0,65 %
	926-273-4		01-2119451151-53	
	Carc. 2, STOT SE 3, Asp. Tox. 1, Aquatic Chronic 2; H351 H336 H304 H411			

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

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
64742-47-8	265-149-8	Distillates (petroleum), hydrotreated light, Kerosine - unspecified	35 - 45 %
	inhalation: LC50 = 5,28 mg/l (dusts or mists); dermal: LD50 = > 2000 mg/kg; oral: LD50 = > 5000 mg/kg		
106-97-8	203-448-7	butane	30 - 40 %
	inhalation: LC50 = 658 mg/l (dusts or mists)		
74-98-6	200-827-9	propane	8 - 12 %
	inhalation: LC50 = > 20 mg/l (vapours)		
	919-284-0	Hydrocarbons, C10, aromatics, > 1% naphthalene	0 - 0,65 %
	dermal: LD50 = > 2000 mg/kg; oral: LD50 = > 5000 mg/kg		
	926-273-4	Hydrocarbons, C10-C13, aromatics, > 1% naphthalene	0 - 0,65 %
	dermal: LD50 = > 2000 mg/kg; oral: LD50 = > 5000 mg/kg		

Further Information

EC No. 919-284-0 & 926-273-4:
The amount of these two components will not exceed 1 % content within the product.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

First aider: Pay attention to self-protection!

After inhalation

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

After contact with skin

Wash with plenty of water. Change contaminated clothing.

After contact with eyes

If product gets into the eye, keep eyelid open and rinse immediately with large quantities of water, for at least 5 minutes. Subsequently consult an ophthalmologist.

After ingestion

Rinse mouth immediately and drink plenty of water. Do NOT induce vomiting. Caution if victim vomits: Risk of aspiration! Medical treatment necessary.

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

Following eye contact: Conjunctival redness.
After skin contact: erythema (redness)
after ingestion: vomiting.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO_2). Foam. Extinguishing powder. Atomized water.
Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

High power water jet.

5.2. Special hazards arising from the substance or mixture

Vapours may form explosive mixtures with air. Heating causes rise in pressure with risk of bursting.

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

Additional information

Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Remove all sources of ignition. Provide adequate ventilation. Do not breathe gas/vapour/aerosol. Avoid contact with skin, eyes and clothes.

6.2. Environmental precautions

Do not allow uncontrolled discharge of product into the environment.

6.3. Methods and material for containment and cleaning up

Other information

Ventilate affected area.
Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

6.4. Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/vapour/aerosol. Avoid contact with skin, eyes and clothes.

Advice on protection against fire and explosion

Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. Vapours may form explosive mixtures with air.

Advice on general occupational hygiene

Take off contaminated clothing. Wash hands before breaks and after work. When using do not eat or drink.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Keep in a cool, well-ventilated place. Keep away from sources of ignition - No smoking.

Hints on joint storage

Do not store together with: Oxidizing agents.

7.3. Specific end use(s)

In case of special use, contact supplier.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m³	fibres/ml	Category	Origin
106-97-8	Butane	600	1450		TWA (8 h)	WEL
		750	1810		STEL (15 min)	WEL

DNEL/DMEL values

CAS No	Substance			
DNEL type		Exposure route	Effect	Value
64742-47-8	Distillates (petroleum), hydrotreated light, Kerosine - unspecified			
Consumer DNEL, long-term		oral	systemic	19 mg/kg bw/day
56358-09-9	Solvent red dye			
Worker DNEL, long-term		dermal	systemic	0,53 mg/kg bw/day
Worker DNEL, long-term		inhalation	systemic	1,88 mg/m³
Consumer DNEL, long-term		dermal	systemic	0,27 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	0,46 mg/m³
Consumer DNEL, long-term		oral	systemic	0,27 mg/kg bw/day
57712-94-4	Solvent red Dye			
Worker DNEL, long-term		dermal	systemic	0,53 mg/kg bw/day
Worker DNEL, long-term		inhalation	systemic	1,88 mg/m³
Consumer DNEL, long-term		dermal	systemic	0,27 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	0,46 mg/m³
Consumer DNEL, long-term		oral	systemic	0,27 mg/kg bw/day
	Hydrocarbons, C10, aromatics, > 1% naphthalene			
Worker DNEL, long-term		dermal	systemic	12,5 mg/kg bw/day
Worker DNEL, long-term		inhalation	systemic	150 mg/m³
Consumer DNEL, long-term		dermal	systemic	7,5 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	32 mg/m³
Consumer DNEL, long-term		oral	systemic	7,5 mg/kg bw/day
	Hydrocarbons, C10-C13, aromatics, > 1% naphthalene			
Worker DNEL, long-term		dermal	systemic	12,5 mg/kg bw/day
Worker DNEL, long-term		inhalation	systemic	151 mg/m³
Consumer DNEL, long-term		dermal	systemic	7,5 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	32 mg/m³
Consumer DNEL, long-term		oral	systemic	7,5 mg/kg bw/day

8.2. Exposure controls

Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear eye/face protection.

Hand protection

The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. 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.
Recommended protective gloves brand: neoprene NBR (Nitrile rubber). Viton (breakthrough time > 240 min)
Protect skin by using skin protective cream.

Skin protection

Body protection: not required.

Respiratory protection

With correct and proper use, and under normal conditions, breathing protection is not required.

Environmental exposure controls

No information available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Aerosol	
Colour:	red	
Odour:	characteristic	
Melting point/freezing point:		not applicable
Boiling point or initial boiling point and boiling range:		not applicable
Flammability:		not applicable not determined
Lower explosion limits:		1,4 vol. %
Upper explosion limits:		10,8 vol. %
Flash point:		not applicable
Decomposition temperature:		not determined
pH-Value:		not applicable
Water solubility:		insoluble
Solubility in other solvents not determined		
Partition coefficient n-octanol/water:		not determined
Vapour pressure: (at 20 °C)		3100 hPa
Density:		not determined
Relative vapour density:		not determined

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

Heating causes rise in pressure with risk of bursting. Vapours may form explosive mixtures with air.

Self-ignition temperature

Solid:	not applicable
Gas:	not determined

Oxidizing properties

Not oxidising.

Other safety characteristics

Evaporation rate:	not determined
Solid content:	not determined

SECTION 10: Stability and reactivity

10.1. Reactivity

No risks worthy of mention.

10.2. Chemical stability

No risks worthy of mention.

10.3. Possibility of hazardous reactions

Vapours may form explosive mixtures with air.

10.4. Conditions to avoid

Remove all sources of ignition. Keep away from heat.

10.5. Incompatible materials

Oxidizing agents.

10.6. Hazardous decomposition products

Carbon dioxide. Carbon monoxide

SECTION 11: Toxicological information

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

Acute toxicity

Based on available data, the classification criteria are not met.

ATEmix calculated

ATE (oral) > 2000 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation gas) > 20000 ppm

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
64742-47-8	Distillates (petroleum), hydrotreated light, Kerosine - unspecified				
	oral	LD50 > 5000 mg/kg	Rat		
	dermal	LD50 > 2000 mg/kg	Rabbit		
	inhalation (4 h) dust/mist	LC50 5,28 mg/l	Rat		
106-97-8	butane				
	inhalation (4 h) dust/mist	LC50 658 mg/l	Rat		
74-98-6	propane				
	inhalation (4 h) vapour	LC50 > 20 mg/l	Rat		
	Hydrocarbons, C10, aromatics, > 1% naphthalene				
	oral	LD50 > 5000 mg/kg	Rat		
	dermal	LD50 > 2000 mg/kg	Rabbit		
	Hydrocarbons, C10-C13, aromatics, > 1% naphthalene				
	oral	LD50 > 5000 mg/kg	Rat		
	dermal	LD50 > 2000 mg/kg	Rabbit		

Irritation and corrosivity

Causes skin irritation.
Serious eye damage/eye irritation: Based on available data, the classification criteria are not met.

Sensitising effects

Contains Solvent red dye, Solvent red Dye. May produce an allergic reaction.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

STOT-single exposure

May cause drowsiness or dizziness. (Distillates (petroleum), hydrotreated light, Kerosine - unspecified)

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.
Caution if victim vomits: Risk of aspiration!

11.2. Information on other hazards

Endocrine disrupting properties

see section 12

SECTION 12: Ecological information

12.1. Toxicity

Toxic to aquatic life with long lasting effects.

CAS No	Chemical name						
	Aquatic toxicity	Dose		[h] | [d]	Species	Source	Method
64742-47-8	Distillates (petroleum), hydrotreated light, Kerosine - unspecified						
	Fish toxicity	NOEC	0,098 mg/l	14 d			
74-98-6	propane						
	Acute fish toxicity	LC50	> 100 mg/l	96 h			
	Acute algae toxicity	ErC50	> 100 mg/l				
	Acute crustacea toxicity	EC50	> 100 mg/l	48 h			
	Hydrocarbons, C10, aromatics, > 1% naphthalene						
	Acute fish toxicity	LC50	2,0 - 5,0 mg/l	96 h	Oncorhynchus mykiss (Rainbow trout)		
	Acute algae toxicity	ErC50	4,0 - 11,0 mg/l	72 h	Pseudokirchneriella subcapitata		
	Acute crustacea toxicity	EC50	1,0 - 10,0 mg/l	48 h	Daphnia magna		
	Hydrocarbons, C10-C13, aromatics, > 1% naphthalene						
	Acute fish toxicity	LC50	2,0 - 5,0 mg/l	96 h	Oncorhynchus mykiss (Rainbow trout)		
	Acute algae toxicity	ErC50	4,0 - 11,0 mg/l	72 h	Pseudokirchneriella subcapitata		
	Acute crustacea toxicity	EC50	1,0 - 10,0 mg/l	48 h	Daphnia magna		

12.2. Persistence and degradability

The product has not been tested.

12.3. Bioaccumulative potential

The product has not been tested.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
106-97-8	butane	2,89
74-98-6	propane	2,36

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.
The product has not been tested.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

No information available.

Further information

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation.

List of Wastes Code - residues/unused products

160504 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; gases in pressure containers (including halons) containing hazardous substances; hazardous waste

List of Wastes Code - contaminated packaging

150104 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); metallic packaging

Contaminated packaging

Wash with plenty of water. Completely emptied packages can be recycled.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:	UN 1950
14.2. UN proper shipping name:	AEROSOLS
14.3. Transport hazard class(es):	2
14.4. Packing group:	-
Hazard label:	2.1

Classification code:	5F
Special Provisions:	190 327 344 625
Limited quantity:	1 L
Excepted quantity:	E0
Transport category:	2
Tunnel restriction code:	D

Inland waterways transport (ADN)

14.1. UN number or ID number:	UN 1950
14.2. UN proper shipping name:	AEROSOLS
14.3. Transport hazard class(es):	2
14.4. Packing group:	-
Hazard label:	2.1

Classification code:	5F
Special Provisions:	190 327 344 625
Limited quantity:	1 L
Excepted quantity:	E0

Marine transport (IMDG)

14.1. UN number or ID number:	UN 1950
14.2. UN proper shipping name:	AEROSOLS
14.3. Transport hazard class(es):	2.1
14.4. Packing group:	-
Hazard label:	2.1

Special Provisions:	63 190 277 327 344 381 959
Limited quantity:	1000 mL
Excepted quantity:	E0
EmS:	F-D, S-U

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number:	UN 1950
14.2. UN proper shipping name:	AEROSOLS, FLAMMABLE
14.3. Transport hazard class(es):	2.1
14.4. Packing group:	-
Hazard label:	2.1

Special Provisions:	A145 A167 A802
Limited quantity Passenger:	30 kg G
Passenger LQ:	Y203
Excepted quantity:	E0
IATA-packing instructions - Passenger:	203
IATA-max. quantity - Passenger:	75 kg
IATA-packing instructions - Cargo:	203
IATA-max. quantity - Cargo:	150 kg

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

No information available.

14.7. Maritime transport in bulk according to IMO instruments

not applicable

Other applicable information

Hazchem code: -

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 28, Entry 40, Entry 75

2004/42/EC (VOC): 47,4 %

National regulatory information

Water hazard class (D): 1 - slightly hazardous to water

15.2. Chemical safety assessment

For the following substances of this mixture a chemical safety assessment has been carried out:
Distillates (petroleum), hydrotreated light, Kerosine - unspecified
Hydrocarbons, C10, aromatics, > 1% naphthalene
Hydrocarbons, C10-C13, aromatics, > 1% naphthalene

SECTION 16: Other information

Changes

section 1, 6, 9, 11, 12, 14, 16

Abbreviations and acronyms

CLP: Classification, labelling and Packaging
REACH: Registration, Evaluation and Authorization of Chemicals
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
UN: United Nations
CAS: Chemical Abstracts Service
DNEL: Derived No Effect Level
DMEL: Derived Minimal Effect Level
PNEC: Predicted No Effect Concentration
ATE: Acute toxicity estimate
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
PBT: persistent, bioaccumulative, toxic
vPvB: very persistent, very bioaccumulative
ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Regulations concerning the international carriage of dangerous goods by rail
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
(Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)
IMDG: International Maritime Code for Dangerous Goods
EmS: Emergency Schedules
MFAG: Medical First Aid Guide
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
SVHC: Substance of Very High Concern
Flam. Gas: Flammable gases
Asp. Tox: Aspiration hazard
Skin Irrit: Skin irritation
Skin Sens: Skin sensitisation
Carc: Carcinogenicity
STOT SE: Specific target organ toxicity - single exposure
STOT RE: Specific target organ toxicity - repeated exposure
Aquatic Chronic: Chronic aquatic hazard

Key literature references and sources for data

General review and adaption to regulation (EC) 2020/878

Relevant H and EUH statements (number and full text)

H220	Extremely flammable gas.
H222	Extremely flammable aerosol.
H229	Pressurised container: May burst if heated.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.

EUH208 Contains Solvent red dye, Solvent red Dye. May produce an allergic reaction.

Further Information

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.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)

Safety Data Sheet

according to Regulation (EC) No 1907/2006

NORD-TEST Entwickler U 89 Spray

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

1.1. Product identifier

NORD-TEST Entwickler U 89 Spray

Further trade names

Article no. (user):
121.300.701

UFI: YXJ5-2X8P-FQ6S-W0PF

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

Use of the substance/mixture

Penetration test

1.3. Details of the supplier of the safety data sheet

Company name: Helling GmbH
Street: Spoekerdamm 2
Place: D-25436 Heidgraben
Telephone: +49-4122-922-0 Telefax: +49-4122-922-201
E-mail: info@helling.de
Internet: www.helling.de

1.4. Emergency telephone number:

Emergency CONTACT (24-Hour-Number): GBK GmbH +49 (0)6132-84463

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Hazard categories:
Aerosols: Aerosol 1
Serious eye damage/eye irritation: Eye Irrit. 2
Specific target organ toxicity - single exposure: STOT SE 3
Hazard Statements:
Extremely flammable aerosol.
Pressurised container: May burst if heated.
Causes serious eye irritation.
May cause drowsiness or dizziness.

2.2. Label elements

Regulation (EC) No 1272/2008

Hazard components for labelling

ethanol, ethyl alcohol
acetone; propan-2-one; propanone

Signal word: Danger

Pictograms:

Hazard statements

H222	Extremely flammable aerosol.
H229	Pressurised container: May burst if heated.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

Precautionary statements

P102	Keep out of reach of children.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211	Do not spray on an open flame or other ignition source.
P251	Do not pierce or burn, even after use.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P410+P412	Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
106-97-8	butane			35 - 42 %
	203-448-7	601-004-00-0	01-2119474691-32	
	Flam. Gas 1; H220			
64-17-5	ethanol, ethyl alcohol			23 - 30 %
	200-578-6	603-002-00-5	01-2119457610-43	
	Flam. Liq. 2, Eye Irrit. 2; H225 H319			
74-98-6	propane			12 - 20 %
	200-827-9	601-003-00-5	01-2119486944-21	
	Flam. Gas 1; H220			
67-64-1	acetone; propan-2-one; propanone			6 - 11 %
	200-662-2	606-001-00-8	01-2119471330-49	
	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3; H225 H319 H336 EUH066			

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

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
106-97-8	203-448-7	butane	35 - 42 %
	inhalation: LC50 = 658 mg/l (dusts or mists)		
64-17-5	200-578-6	ethanol, ethyl alcohol	23 - 30 %
	inhalation: LC50 = 95,6 mg/l (vapours); dermal: LD50 = > 2000 mg/kg; oral: LD50 = 10470 mg/kg		
74-98-6	200-827-9	propane	12 - 20 %
	inhalation: LC50 = > 20 mg/l (vapours)		
67-64-1	200-662-2	acetone; propan-2-one; propanone	6 - 11 %
	inhalation: LC50 = 76 mg/l (vapours); dermal: LD50 = 20000 mg/kg; oral: LD50 = 5800 mg/kg		

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

First aider: Pay attention to self-protection!

After inhalation

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

After contact with skin

Wash with plenty of water. Change contaminated clothing.

After contact with eyes

If product gets into the eye, keep eyelid open and rinse immediately with large quantities of water, for at least 5 minutes. Subsequently consult an ophthalmologist.

After ingestion

Rinse mouth immediately and drink plenty of water. Medical treatment necessary.

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

Following inhalation: Headache. drowsiness. Dizziness.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO_2). Foam. Extinguishing powder. Atomized water.
Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

High power water jet.

5.2. Special hazards arising from the substance or mixture

Combustible. Vapours may form explosive mixtures with air.
Heating causes rise in pressure with risk of bursting.

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

Additional information

Use water spray jet to protect personnel and to cool endangered containers. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Remove all sources of ignition. Provide adequate ventilation. Do not breathe gas/vapour/aerosol.

6.2. Environmental precautions

Do not allow uncontrolled discharge of product into the environment. Explosion hazard.

6.3. Methods and material for containment and cleaning up

Other information

Ventilate affected area.
Flammable liquids: Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

6.4. Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes.

Advice on protection against fire and explosion

Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. Vapours may form explosive mixtures with air.

Advice on general occupational hygiene

Change contaminated clothing. Wash hands before breaks and after work. When using do not eat or drink.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Keep in a cool, well-ventilated place. Keep away from sources of ignition - No smoking.

Hints on joint storage

Do not store together with: Oxidizing agents.

7.3. Specific end use(s)

Please refer to our internet website for more information: www.helling.de

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m³	fibres/ml	Category	Origin
67-64-1	Acetone	500	1210		TWA (8 h)	WEL
		1500	3620		STEL (15 min)	WEL
106-97-8	Butane	600	1450		TWA (8 h)	WEL
		750	1810		STEL (15 min)	WEL
64-17-5	Ethanol	1000	1920		TWA (8 h)	WEL

DNEL/DMEL values

CAS No	Substance			
DNEL type		Exposure route	Effect	Value
64-17-5	ethanol, ethyl alcohol			
Consumer DNEL, long-term		oral	systemic	87 mg/kg bw/day
Consumer DNEL, long-term		dermal	systemic	206 mg/kg bw/day
Worker DNEL, long-term		dermal	systemic	343 mg/kg bw/day
Consumer DNEL, acute		inhalation	local	950 mg/m³
Consumer DNEL, long-term		inhalation	systemic	114 mg/m³
Worker DNEL, acute		inhalation	local	1900 mg/m³
Worker DNEL, long-term		inhalation	systemic	950 mg/m³
67-64-1	acetone; propan-2-one; propanone			
Consumer DNEL, long-term		oral	systemic	62 mg/kg bw/day
Consumer DNEL, long-term		dermal	systemic	62 mg/kg bw/day
Worker DNEL, long-term		dermal	systemic	186 mg/kg bw/day
Worker DNEL, acute		inhalation	local	2420 mg/m³
Consumer DNEL, long-term		inhalation	systemic	200 mg/m³
Worker DNEL, long-term		inhalation	systemic	1210 mg/m³

PNEC values

CAS No	Substance	
Environmental compartment		Value
64-17-5	ethanol, ethyl alcohol	
Freshwater		0,96 mg/l
Marine water		0,79 mg/l
Freshwater sediment		3,6 mg/kg
Marine sediment		2,9 mg/kg
Micro-organisms in sewage treatment plants (STP)		580 mg/l
Soil		0,63 mg/kg
67-64-1	acetone; propan-2-one; propanone	
Freshwater		10,6 mg/l
Freshwater (intermittent releases)		21 mg/l
Marine water		1,06 mg/l
Freshwater sediment		30,4 mg/l
Marine sediment		3,04 mg/l
Micro-organisms in sewage treatment plants (STP)		100 mg/l
Soil		29,5 mg/l

8.2. Exposure controls


Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe

gas/fumes/vapour/spray.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear eye/face protection.

Hand protection

Tested protective gloves are to be worn: Solvent-proof.
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.
Before using check leak tightness / impermeability.
Recommended protective gloves brand:
NBR (Nitrile rubber). Butyl rubber. FKM (fluororubber).
penetration time (maximum wearing period): > 8 h (DIN EN 374)
Protective gloves have to be replaced at the first sign of deterioration.
Unsuitable material: NR (Natural rubber (Caoutchouc), Natural latex). PVC (Polyvinyl chloride). Thick material. Leather

Skin protection

Body protection: not required.

Respiratory protection

With correct and proper use, and under normal conditions, breathing protection is not required.

Environmental exposure controls

No information available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Aerosol	
Colour:	white	
Odour:	Alcohol	
Melting point/freezing point:		not applicable
Boiling point or initial boiling point and boiling range:		not applicable
Lower explosion limits:		1,4 g/m³
Upper explosion limits:		10,8 g/m³
Flash point:		not applicable
Auto-ignition temperature:		not determined
pH-Value:		not applicable
Viscosity / kinematic:		not applicable
Water solubility:		partially soluble

Solubility in other solvents

not determined

Partition coefficient n-octanol/water:	not determined
Vapour pressure: (at 20 °C)	3100 hPa
Density (at 20 °C):	0,66 g/cm³

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

not explosive.

Oxidizing properties

Not oxidising.

Other safety characteristics

Solvent separation test: not applicable

Solvent content:	20 - 25 %
Solid content:	9,44%
Viscosity / dynamic:	not applicable

Further Information

No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No risks worthy of mention.

10.2. Chemical stability

No risks worthy of mention.

10.3. Possibility of hazardous reactions

Vapours may form explosive mixtures with air.

10.4. Conditions to avoid

Keep away from heat. Ignition hazard.

10.5. Incompatible materials

Oxidizing agents, strong.

10.6. Hazardous decomposition products

Carbon dioxide. Carbon monoxide

SECTION 11: Toxicological information

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

Acute toxicity

Based on available data, the classification criteria are not met.

ATEmix calculated

ATE (oral) > 2000 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation gas) > 20000 ppm

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
106-97-8	butane				
	inhalation (4 h) dust/mist	LC50 658 mg/l	Rat		
64-17-5	ethanol, ethyl alcohol				
	oral	LD50 10470 mg/kg	Rat	IUCLID	
	dermal	LD50 > 2000 mg/kg	Rabbit		
	inhalation (4 h) vapour	LC50 95,6 mg/l	Rat	RTECS	
74-98-6	propane				
	inhalation (4 h) vapour	LC50 > 20 mg/l	Rat		
67-64-1	acetone; propan-2-one; propanone				
	oral	LD50 5800 mg/kg	Rat	RTECS	
	dermal	LD50 20000 mg/kg	Rabbit	IUCLID	
	inhalation (4 h) vapour	LC50 76 mg/l	Rat		

Irritation and corrosivity

Causes serious eye irritation.
Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

STOT-single exposure

May cause drowsiness or dizziness.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

Endocrine disrupting properties

see section 12

SECTION 12: Ecological information

12.1. Toxicity

Based on available data, the classification criteria are not met.

CAS No	Chemical name						
	Aquatic toxicity	Dose		[h] | [d]	Species	Source	Method
64-17-5	ethanol, ethyl alcohol						
	Acute fish toxicity	LC50	8140 mg/l	96 h	Leuciscus idus (golden orfe)		
	Acute algae toxicity	ErC50	275 mg/l	72 h	Chlorella vulgaris		
	Acute crustacea toxicity	EC50	> 10000 mg/l	48 h	Daphnia magna	IUCLID	
74-98-6	propane						
	Acute fish toxicity	LC50	> 100 mg/l	96 h			
	Acute algae toxicity	ErC50	> 100 mg/l				
	Acute crustacea toxicity	EC50	> 100 mg/l	48 h			
67-64-1	acetone; propan-2-one; propanone						
	Acute fish toxicity	LC50	5540 mg/l	96 h	Onchorhynchus mykiss		
	Acute crustacea toxicity	EC50	6100 mg/l	48 h	Daphnia magna		
	Algae toxicity	NOEC	530 mg/l	8 d	Microcystis aeruginosa		

12.2. Persistence and degradability

Product is partially biodegradable.
The insoluble part can be precipitated mechanically in suitable sewage treatment plants.

12.3. Bioaccumulative potential

Based on the n-octanol/water partition coefficient significant accumulation in organisms is not expected.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
106-97-8	butane	2,89
64-17-5	ethanol, ethyl alcohol	-0,31
74-98-6	propane	2,36
67-64-1	acetone; propan-2-one; propanone	-0,24

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

Do not empty into drains.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation.
The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.
Recommendation:

List of Wastes Code - residues/unused products

160504 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; gases in pressure containers (including halons) containing hazardous substances; hazardous waste

List of Wastes Code - contaminated packaging

150104 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); metallic packaging

Contaminated packaging

Water (with cleaning agent). Completely emptied packages can be recycled.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:	UN 1950
14.2. UN proper shipping name:	AEROSOLS
14.3. Transport hazard class(es):	2
14.4. Packing group:	-
Hazard label:	2.1

Classification code:	5F
Special Provisions:	190 327 344 625
Limited quantity:	1 L
Excepted quantity:	E0

Transport category: 2
Tunnel restriction code: D

Inland waterways transport (ADN)

14.1. UN number or ID number: UN 1950
14.2. UN proper shipping name: AEROSOLS
14.3. Transport hazard class(es): 2
14.4. Packing group: -
Hazard label: 2.1

Classification code: 5F
Special Provisions: 190 327 344 625
Limited quantity: 1 L
Excepted quantity: E0

Marine transport (IMDG)

14.1. UN number or ID number: UN 1950
14.2. UN proper shipping name: AEROSOLS
14.3. Transport hazard class(es): 2.1
14.4. Packing group: -
Hazard label: 2.1

Special Provisions: 63, 190, 277, 327, 344, 381, 959
Limited quantity: 1000 mL
Excepted quantity: E0
EmS: F-D, S-U

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number: UN 1950
14.2. UN proper shipping name: AEROSOLS, FLAMMABLE
14.3. Transport hazard class(es): 2.1
14.4. Packing group: -
Hazard label: 2.1

Special Provisions: A145 A167 A802
Limited quantity Passenger: 30 kg G
Passenger LQ: Y203
Excepted quantity: E0
IATA-packing instructions - Passenger: 203
IATA-max. quantity - Passenger: 75 kg
IATA-packing instructions - Cargo: 203
IATA-max. quantity - Cargo: 150 kg

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

No information available.

14.7. Maritime transport in bulk according to IMO instruments

none

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 28, Entry 40, Entry 75

2004/42/EC (VOC): 90,63 % (598,158 g/l)

Marketing and use of explosives precursors (Regulation (EU) 2019/1148):

This product is regulated by Regulation (EU) 2019/1148: all suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point.

Additional information

aerosol directive (75/324/EEC).
Safety data sheet available for professional user on request.
Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use.
Do not spray on a naked flame or any incandescent material. Keep away from sources of ignition - No smoking.
Keep out of the reach of children.
In case of insufficient ventilation and/or through use, explosive/highly flammable mixtures may develop.

National regulatory information

Water hazard class (D): 1 - slightly hazardous to water

15.2. Chemical safety assessment

For the following substances of this mixture a chemical safety assessment has been carried out:
acetone; propan-2-one; propanone

SECTION 16: Other information

Changes

section 1, 16

Abbreviations and acronyms

CLP: Classification, labelling and Packaging
REACH: Registration, Evaluation and Authorization of Chemicals
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
UN: United Nations
CAS: Chemical Abstracts Service
DNEL: Derived No Effect Level
DMEL: Derived Minimal Effect Level
PNEC: Predicted No Effect Concentration
ATE: Acute toxicity estimate
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
PBT: persistent, bioaccumulative, toxic
vPvB: very persistent, very bioaccumulative
ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Regulations concerning the international carriage of dangerous goods by rail
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
(Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)
IMDG: International Maritime Code for Dangerous Goods
EmS: Emergency Schedules
MFAG: Medical First Aid Guide
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
SVHC: Substance of Very High Concern
For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations).
Flam. Gas: Flammable gases
Flam. Liq: Flammable liquids
Eye Irrit: Eye irritation
STOT SE: Specific target organ toxicity - single exposure

Key literature references and sources for data

General review and adaption to regulation (EC) 2020/878

Relevant H and EUH statements (number and full text)

H220	Extremely flammable gas.
H222	Extremely flammable aerosol.
H225	Highly flammable liquid and vapour.
H229	Pressurised container: May burst if heated.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
EUH066	Repeated exposure may cause skin dryness or cracking.

Further Information

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.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)

ProRox® WM 920

ProRox WM 920 jsou rohože z kamenné vlny pojené organickou pryskyřicí s jednostranně našitým drátěným pletivem. Rohože na pletivu ProRox WM 920 jsou vhodné zejména pro průmyslové izolace, jako jsou vysokotlaké parovody, opravy kolon, kotlů, pecí, kde se tuhé materiály těžko aplikují, a kde jsou vysoké požadavky na tepelnou odolnost izolace.

CE

Technické parametry

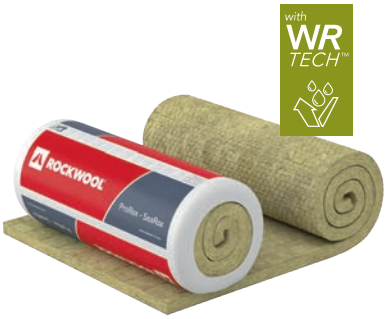
	Vlastnosti výrobku										Norma
Součinitel tepelné vodivosti	T (°C)	50	100	150	200	250	300	350	400	500	EN 12667
	λ (W/mK)	0,040	0,047	0,055	0,067	0,079	0,093	0,109	0,126	0,168	
Maximální provozní teplota	500 °C										EN 14706
Třída reakce na oheň	EuroClass A1										EN 13501-1
Jmenovitá objemová	60 kg/m^3										EN 1602
Absorpce vody	WS1 (≤ 1 kg/m^2)										EN 1609
Obsah chloridových iontů	CL10 (≤ 10 ppm)										EN 13468
Faktor difúzního odporu	μ = 1										EN 14303
EN 14303 Kód výrobku*	MW EN 14303-T2-ST(+)500-WS1-CL10										EN 14303

* Třída tloušťky deklarovaná při zátěži 1000 Pa

Dodržování předpisů

Rohože na drátěném pletivu ProRox WM 920 zcela vyhovují požadavkům stanoveným mezinárodně uznávanými normami (EN 14303).

ProRox® WM 950



ProRox WM 950 is a lightly bonded stone wool insulation mat stitched on galvanized wire mesh with galvanized wire. Stainless steel mesh and binding wire (SW), and/or reinforced aluminium foil (ALU) facing are available upon request. The wired mats are produced with an innovative water-repellent binder, known as WR-Tech™, to mitigate the risk of corrosion under insulation (CUI). WR-Tech ensures our stone wool maintains its superior water repellency even at elevated operating temperatures within the CUI range, while preserving its excellent thermal performance in use.

Application

The wired mat is suitable for the thermal and acoustic insulation of industrial installations exposed to the environment, such as outdoor industrial pipework and equipment at petrochemical plants and refineries.

Product properties in accordance with EN 14303

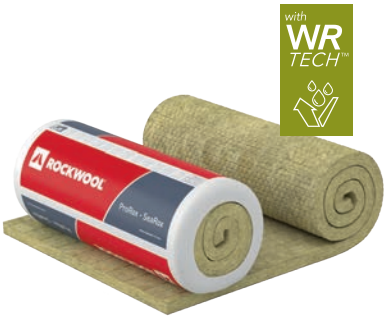
Properties	Performance												Norms
Thermal conductivity	T (°C)	50	100	150	200	250	300	350	400	500	600	640	EN 12667
	λ (W/mK)	0,039	0,045	0,053	0,062	0,072	0,084	0,097	0,112	0,146	0,192	0,213	
Maximum Service Temperature	640°C												EN 14706
Reaction to fire	Euroclass A1 Non-combustible												EN 13501-1 IMO 2010 FTPC
Density	80 kg/m^3												EN 1602
Corrosion resistance	Trace quantity of water leachable chloride ions: ≤ 10 mg/kg												EN 13468
Water absorption	≤ 0,2 kg/m^2 ≤ 0,2 kg/m^2 (After 24 hrs. pre-heating at 250°C)												EN 1609 EN ISO 29767
Water vapour diffusion resistance	μ = 1												EN 14303
Influence on coating systems	Free from substances (e.g. silicone oil) that might impair surface wetting												VW 3.10.7
Designation code*	MW EN 14303-T2-ST(+)640-WS1-CL10												EN 14303

* Thickness class declared under the load of 1000 Pa

Compliance

- ProRox WM 950 fully complies with the requirements as set by the internationally recognized standards like EN 14303, ASTM C592 Type III, ASTM C795, VDI 2055 , VDI 2055 and CINI 2.2.02.
- Above product declarations are also applicable for other available product variances and/or optional facings.
- ROCKWOOL stone wool insulation is made from volcanic rock and is not classified as a hazardous substance in accordance with Note Q, regulation (EC) No. 1272/2008.

ProRox® WM 960



ProRox WM 960 is a lightly bonded heavy-duty stone wool insulation mat stitched on galvanized wired mesh with galvanized wire. Stainless steel mesh and binding wire (SW), and/or reinforced aluminium foil (ALU) facing are available upon request. The wired mats are produced with an innovative water-repellent binder, known as WR-Tech™, to mitigate the risk of corrosion under insulation (CUI). WR-Tech ensures our stone wool maintains its superior water repellency even at elevated operating temperatures within the CUI range, while preserving its excellent thermal performance in use.

Application

The wired mat is suitable for the thermal and acoustic insulation of industrial installations exposed to the environment, such as outdoor industrial pipework, reactors and furnaces at petrochemical plants and refineries.

Product properties in accordance with EN 14303

Properties	Performance												Norms
Thermal conductivity	T (°C)	50	100	150	200	250	300	350	400	500	600	660	EN 12667
	λ (W/mK)	0,039	0,045	0,052	0,059	0,068	0,078	0,089	0,102	0,131	0,167	0,191	
Maximum Service Temperature	660°C												EN 14706
Reaction to fire	Euroclass A1 Non-combustible												EN 13501-1 IMO 2010 FTPC
Density	100 kg/m³												EN 1602
Corrosion resistance	Trace quantity of water leachable chloride ions: ≤ 10 mg/kg												EN 13468
Water absorption	≤ 0,2 kg/m² ≤ 0,2 kg/m² (After 24 hrs. pre-heating at 250°C)												EN 1609 EN ISO 29767
Water vapour diffusion resistance	μ = 1												EN 14303
Influence on coating systems	Free from substances (e.g. silicone oil) that might impair surface wetting												VW 3.10.7
EN 14303 Designation code*	MW EN 14303-T2-ST(+)660-WS1-CL10												EN 14303

* Thickness class declared under the load of 1000 Pa.

Compliance

- ProRox WM 960 fully complies with the requirements as set by the internationally recognized standards like EN 14303, ASTM C592 Type III, ASTM C795, VDI 2055 and CINI 2.2.02.
- Above product declarations are also applicable for other available product variances and/or optional facings.
- ROCKWOOL stone wool insulation is made from volcanic rock and is not classified as a hazardous substance in accordance with Note Q, regulation (EC) No. 1272/2008.

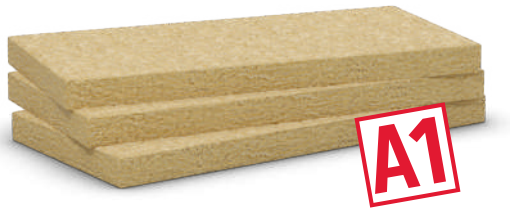
Multirock Casa

Panouri semi-rigide de vată bazaltică, hidrofobizate în masă cu proprietăți izolatoare îmbunătățite.

Domeniu de aplicare

Panourile Multirock Casa au fost concepute pentru aplicații multiple.
Se utilizează pentru izolarea termică, protecția fonică și protecția la foc a mansardelor, acoperișurilor înclinate ventilate, planșeelor pe grinzi de lemn, tavanelor suspendate, pereților interiori, casetelor orizontale pentru fațade. Se recomandă în aplicații unde nu sunt necesare rezistențe mecanice ale stratului de izolație.

Plăcile Multirock Casa sunt ambalate în folie de polietilenă termocontractabilă marcată cu numele producătorului. Pe eticheta produsului sunt menționate caracteristicile principale.



Proprietățile vatei bazaltice ROCKWOOL

- Termoizolare, protecție la foc, protecție împotriva propagării flăcărilor, protecție fonică.
- Panori hidrofobizate; permeabile la vapori; stabile dimensional; rezistente la mediu alcalin.
- Produse minerale, rezistente la acțiunea dăunătorilor, nu dăunează sănătății

Dimensiuni, gamă de produse şi ambalare			
Grosime (mm)	50	100	150
Lungime x lățime (mm)	1200 x 600		
m^2 / pachet	8,64	4,32	2,16
m^2 / palet	69,12	34,56	21,60

Rezistență termică R_D			
Grosime (mm)	50	100	150
R_D (m^2K/W)	1,35	2,70	4,05

Parametri tehnici

Proprietate	Simbol	Valoare	U.M.	Standard
Reacția la foc	-	A1	-	EN 13501-1
Coeficientul de conductibilitate termică declarat	λ_D	0,037	W/(m·K)	EN 12667
Factorul de rezistență la difuzia vaporilor	μ	1	(-)	EN 13162
Rezistenta la flux de aer	AFr	≥ 6	kPa·s/m^2	EN 29053
Căldură specifică	c_p	1030	J/(kg·K)	EN 12524
Coeficient de absorbție de apă (scurtă durată)	W_p	≤ 1	kg/m^2	EN 1609
Coeficient de absorbție de apă (lungă durată)	W_{lp}	≤ 3	kg/m^2	EN 12087
Punct de topire	t_t	>1000	°C	DIN 4102
Certificări tehnice - marcaj CE	1020 - CPR - 010041766			
Sistem de management al calității	EN ISO 9001: 2015 Certificat nr: 00.12.1901 EUROCERT Grecia			
Sistem de management al mediului	EN ISO 14001: 2015 Certificat nr: 00.02.1223 EUROCERT Grecia			
Sistem de management al sănătății și securității în muncă	ISO 45001: 2018 Certificat nr: 00.05.0232 EUROCERT Grecia			
Cod unic de identificare	MW-EN 13162-T2-MU1-WS-WL(p)-AFr6			

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