

Printing date 09/23/2022

Version number 178

Reviewed on 08/04/2022

1 Identification

- · Product identifier
 - · Product number TV84
 - Trade name: HARDENER FOR POLYESTER • Application of the substance / the mixture For professional use

· Details of the supplier of the safety data sheet

- Manufacturer/Supplier: IVM Chemicals Srl
 Viale della Stazione 3 -27020 Parona (PV)Italy -Tel +39 038425441
- Information department: Environmental Health and safety office hseoffice @ivmchemicals.com
- Emergency telephone number: ChemTel Expert Assistance Hotline/SDS Fax Access by dialing 1-800-255-3924 or for International +1-813-248-0585.

2 Hazard(s) identification

· Classification of the substance or mixture Organic Peroxides - Type D H242 Heating may cause a fire. Acute Toxicity - Inhalation 3 H331 Toxic if inhaled. Skin Corrosion 1B H314 Causes severe skin burns and eve damage. Eye Damage 1 H318 Causes serious eye damage. Sensitization - Skin 1 H317 May cause an allergic skin reaction. Germ Cell Mutagenicity 2 H341 Suspected of causing genetic defects. Carcinogenicity 2 H351 Suspected of causing cancer. Specific Target Organ Toxicity - Single Exposure 3H335 May cause respiratory irritation.

Aquatic Chronic 3

H412 Harmful to aquatic life with long lasting effects.

· Label elements

· GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS). • Hazard pictograms



· Signal word Danger

- Hazard-determining components of labeling: tert-butyl hydroperoxide 2-Butanone, peroxide
- · Hazard statements
- H242 Heating may cause a fire.
- H331 Toxic if inhaled.
- H314 Causes severe skin burns and eye damage.
- H317 May cause an allergic skin reaction.
- H341 Suspected of causing genetic defects.
- H351 Suspected of causing cancer.
- H335 May cause respiratory irritation.
- H412 Harmful to aquatic life with long lasting effects.



Version number 178

Reviewed on 08/04/2022

Product number TV/84

Printing date 09/23/2022

Product number	1 V 84
Trade name:	HARDENER FOR POLYESTER

 Precautionar 	
P210	Keep away from heat/sparks/open flames/hot surfaces No smoking.
P303+P361	+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rins skin with water/shower.
P305+P351	+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a poison center/doctor.
P321	Specific treatment (see on this label).
P410	Protect from sunlight.
P501	Dispose of contents/container in accordance with local/regional/national international regulations.

The substance possesses oxidizing properties.



· HMIS-ratings (scale 0 - 4)

HEALTH*3Health = *3FIRE3Fire = 3REACTIVITY0Reactivity = 0

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture: consisting of the following components.

131-11-3	dimethyl phthalate	50-74.99%
1338-23-4	2-Butanone, peroxide	25-29.99%
	 Organic Peroxides - Type D, H242 Skin Corrosion 1B, H314; Eye Damage 1, H318 Acute Toxicity - Oral 4, H302; Acute Toxicity - Inhalation 4, H332 	
75-91-2	tert-butyl hydroperoxide	10-12.49%
	 Flammable Liquids 3, H226; Organic Peroxides - Type C, H242 Acute Toxicity - Dermal 3, H311; Acute Toxicity - Inhalation 2, H330 Germ Cell Mutagenicity 2, H341; Carcinogenicity 2, H351 Skin Corrosion 1C, H314; Eye Damage 1, H318 Aquatic Chronic 2, H411 Acute Toxicity - Oral 4, H302; Sensitization - Skin 1, H317; Specific Target Organ Toxicity - Single Exposure 3, H335 	
123-42-2	4-hydroxy-4-methylpentan-2-one	10-12.49%
	 Flammable Liquids 3, H226 Eye Irritation 2A, H319 	

(Contd. on page 3)



Printing date 09/23/2022

Safety Data Sheet acc. to OSHA HCS

Version number 178

Reviewed on 08/04/2022

Product number TV84 Trade name: HARDENER FOR POLYESTER

(Contd. of page 2)

4 First-aid measures

· Description of first aid measures

- · General information:
 - Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

Remove breathing apparatus only after contaminated clothing have been completely removed. In case of irregular breathing or respiratory arrest provide artificial respiration.

personal protective equipment for first aid responders is recommended. (please see section 8) \cdot *After inhalation:*

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness place patient stably in side position for transportation.

· After skin contact: Immediately wash with water and soap and rinse thoroughly.

• After eye contact:

Rinse opened eye for several minutes under running water. If symptoms persist , consult a doctor.

· After swallowing:

Do not induce vomiting; immediately call for medical help.

Immediately call a doctor.

Drink copious amounts of water and provide fresh air. Immediately call a doctor.

- Information for doctor:
 - Most important symptoms and effects, both acute and delayed Allergic reactions
 - For symptoms and effects caused by substances, refer to Section 11.
 - Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

· Extinguishing media

- CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- · For safety reasons unsuitable extinguishing agents:
- Do not use a jet water stream as it may scatter and spread fire.
- · Special hazards arising from the substance or mixture

In case of fire, the following can be released: Nitrogen oxides (NOx) Carbon monoxide (CO)

Carbon monoxide (CO)

Advice for firefighters

Cool by spraying with water the containers to prevent product decomposition and the development of substances potentially hazardous for health and also, in the case of closed containers exposed to flames to prevent explosions.

· Protective equipment:

Hardhat with visor, fireproof clothing, suitable gloves and if necessary respiratory protective device.

6 Accidental release measures

• **Personal precautions, protective equipment and emergency procedures** Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation

(Contd. on page 4)

[•] Suitable extinguishing agents:

US



Version number 178

Reviewed on 08/04/2022

Printing date 09/23/2022

Product number TV84 Trade name: HARDENER FOR POLYESTER

Keep awa	ay from ignition sources	(Cr	ontd. of page 3)
	nental precautions:		
	spective authorities in case of seepage into water course or sewage sy	stem.	
	ow to enter sewers/ surface or ground water.		
	and material for containment and cleaning up:		
	ith liquid-binding material (sand, diatomite, acid binders, universal bind	ərs, sav	vdust).
	ralizing agent.		,
Dispose d	contaminated material as waste according to Section 13.		
Ensure a	dequate ventilation.		
	e to other sections		
	ion 7 for information on safe handling.		
	ion 8 for information on personal protection equipment.		
	ion 13 for disposal information.		
	e Action Criteria for Chemicals		
• PAC-1	:		
	dimethyl phthalate		15 mg/m³
75-91-2	tert-butyl hydroperoxide		0.37 ppm
123-42-2	4-hydroxy-4-methylpentan-2-one 1		150 ppm
· PAC-2	:		
131-11-3	dimethyl phthalate	1,	600 mg/m³
75-91-2	2tert-butyl hydroperoxide4.1 ppm		1 ppm
123-42-2	2-2 4-hydroxy-4-methylpentan-2-one 350 ppm		
· PAC-3	:		
131-11-3	dimethyl phthalate	93	800* mg/m³
75-91-2	tert-butyl hydroperoxide	22	' ppm
123-42-2	4-hydroxy-4-methylpentan-2-one	21	00* ppm

7 Handling and storage

· Handling:

- · Precautions for safe handling
- Ensure good ventilation/exhaustion at the workplace. Open and handle receptacle with care. Keep respiratory protective device available.
- Information about protection against explosions and fires: Keep ignition sources away - Do not smoke. Keep respiratory protective device available.

\cdot Conditions for safe storage, including any incompatibilities

- · Storage:
 - Requirements to be met by storerooms and receptacles:
 - Observe the label precautions, the expiration date for the use, if not indicated, is from delivery date of goods.
 - In cases where there is no reported expiration date , it means that the product must be used within 8 months.
 - · Information about storage in one common storage facility:
 - Do not store together with reducing agents, heavy-metal compounds, acids and alkalis.
 - · Further information about storage conditions: Keep receptacle tightly sealed.
 - Recommended storage temperature:
 - < 25° C

25 ° C

(Contd. on page 5)

⁻ US



Reviewed on 08/04/2022

Printing date 09/23/2022

Version number 178

Product number TV84 Trade name: HARDENER FOR POLYESTER

(Contd. of page 4)

· Specific end use(s) Those typical of the product and the instructions in the data sheet if required.

8 Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see item 7.

· Control parameters

· Components with limit values that require monitoring at the workplace:

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.

At this time, the other constituents have no known exposure limits.

131-11-3 dimethyl phthalate

PEL Long-term value: 5 mg/m³

REL Long-term value: 5 mg/m³

TLV Long-term value: 5 mg/m³

123-42-2 4-hydroxy-4-methylpentan-2-one

- PEL Long-term value: 240 mg/m³, 50 ppm
- REL Long-term value: 240 mg/m³, 50 ppm
- TLV Long-term value: 238 mg/m³, 50 ppm

· Additional information: The lists that were valid during the creation were used as basis.

· Exposure controls

- · Personal protective equipment:
 - General protective and hygienic measures: Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Store protective clothing separately. Avoid contact with the eyes and skin. Dregnant weman about detrictly avoid inholation or akin or
 - Pregnant women should strictly avoid inhalation or skin contact.
 - · Breathing equipment:

Short term filter device:

Filter AX

Suitable respiratory protective device recommended.

· Protection of hands:



Due to missing tests no recommendation to the glove material can be given for the product. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

The glove material has to be impermeable and resistant to the product .

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

(Contd. on page 6)

US

coatings & polymers technologies

Printing date 09/23/2022

Safety Data Sheet acc. to OSHA HCS

Version number 178

Reviewed on 08/04/2022

Product number TV84 Trade name: HARDENER FOR PO	LYESTER	
		(Contd. of page 5)
Penetration time of glove ma The exact break through t gloves and has to be obse Eye protection: Safety glasses	time has to be found out by the	e manufacturer of the protective
Tightly sealed gogg	lles	
9 Physical and chemical prop	erties	
 Information on basic physical and · General Information 	d chemical properties	
· Appearance:		
· Form:	Fluid	
· Color:	According to produc	t specification
· Odor:	Characteristic	
• Odor threshold:	Not determined.	
• pH-value at 20 •C (68 •F):	4.5	
 Change in condition Melting point/Melting range: Boiling point/Boiling range: 	Undetermined. 35 °C (95 °F)	
· Flash point:	100 °C (212 °F)	
· Flammability (solid, gaseous):	Not applicable.	
· Ignition temperature:	555 °C (1,031 °F)	
· Decomposition temperature:	Not determined.	
· Auto igniting:	Product is not selfigniting.	
· SADT	60°C . See chapter 10	
· Danger of explosion:	Product does not present a	an explosion hazard.
· Explosion limits:		
· Lower:	1.4 Vol %	
· Upper:	8.1 Vol %	
• Vapor pressure at 20 °C (68 °F):	1.1 hPa (0.8 mm Hg)	
• Density (+/- 0,03) at 20 °C (68 °F):	1.1 g/cm³ (9.18 lbs/gal)	
· Relative density	Not determined.	
· Vapor density	Not determined.	
· Evaporation rate	Not determined.	
• Solubility in / Miscibility with • Water:	Not miscible or difficult	to mix.
· Partition coefficient (n-octanol/wat	ter): Not determined.	
T 71 1.		
· Viscosity:		
• Viscosity: • Dynamic:	Not determined.	
	Not determined. 40 s (ISO 4 mm)	



Reviewed on 08/04/2022

Printing date 09/23/2022

Version number 178

Product number TV84

Frade name:	HARDENER FOR P	OLYESTER	
			(Contd. of page 6)
· Solvent c	ontent:		
· VOC	content:	10.90 %	
		110.0 g/l / 0.92 lb/gal	
· Solids	content:	80.0 % (EU Regulations)	
· Other infor	mation (HAPS)		
131-11-3 di	methyl phthalate		50-74.99%
· Other inf	ormation	No further relevant information av	vailable.

10 Stability and reactivity

· Reactivity typical of the product as indicated in the data sheet

· Chemical stability

SADT - (Self accelerating decomposition temperature) is the lowest temperature at which it will trigger the self-accelerating decomposition of a substance contained in a typical packaging used to transport the product.

A dangerous self-accelerating decomposition reaction and, under certain circumstances, explosion or fire can be caused by thermal decomposition at the temperature indicated here or superior to it: 60 ° C. The contact with incompatible substances can cause decomposition at the SADT temperature or at temperatures lower than 60 ° C to it.

- Thermal decomposition / conditions to be avoided:
- No decomposition if used and stored according to specifications.

· Possibility of hazardous reactions Vapours may form explosive mixtures with air

- · Conditions to avoid No further relevant information available.
- · Incompatible materials: Acids, alkalis and oxidizing agents

· Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

· Information on toxicological effects

· Acute toxicity:

· LD/.	LC50 value	s that are relevant for classification:
ATE (Acu	te Toxicit	y Estimate)
Oral	LD50	2,152 mg/kg (mouse)
Dermal	LD50	6,330 mg/kg
Inhalative	LC50/4 h	9.9 mg/l (mouse)
1338-23-4	2-Butano	ne, peroxide
Oral	LD50	1,017 mg/kg (mouse)
Dermal	LD50	4,000 mg/kg (mouse)
Inhalative	LC50/4 h	17 mg/l (mouse)
75-91-2 te	rt-butyl h	ydroperoxide
Oral	LD50	560 mg/kg (mouse)
Dermal	LD50	633 mg/kg (rabbit)
Inhalative	LC50/4 h	1.19 mg/l (mouse)
123-42-2	4-hydroxy	-4-methylpentan-2-one
Oral	LD50	3,002 mg/kg (mouse)
Dermal	LD50	13,630 mg/kg (rab)
		(Contd. on page

US



Printing date 09/23/2022

Version number 178

Reviewed on 08/04/2022

Product number TV84

FIGUUCI HUHBEI	1 0 0 4
Trade name:	HARDENER FOR POLYESTER

		(Contd. of page
	LD50.	1,876 mg/kg (mouse)
78-93-3 bi	utanone	
Oral	LD50	2,001 mg/kg (mouse)
Dermal	LD50	5,001 mg/kg (rabbit)
Inhalative	LC50/4 h	21 mg/l (mouse)
	ary irritan	
		Caustic effect on skin and mucous membranes.
	n the eye:	atia offact
		stic effect. ant with the danger of severe eye injury.
		Sensitization possible through skin contact.
		pgical information:
Toxic	un ioxicon	gecui information.
Harmfu	ıl	
Corrosi		
Irritant		
Swallo	wing will	lead to a strong caustic effect on mouth and throat and to the danger
		phagus and stomach.
Toxic if	inhaled.	
Causes severe skin burns and eye damage.		
Causes	s serious e	ye damage.
		ergic skin reaction.
		ising genetic defects.
		ising cancer.
May cause respiratory irritation.		
No ada	litional toxi	cological information know
· Care	cinogenic c	ategories
· 1	ARC (Inter	rnational Agency for Research on Cancer - Cl. 1 and 2)
None of th	e ingredie	nts is listed.
· 1	NTP (Natio	nal Toxicology Program)
None of the ingredients is listed.		
· (OSHA-Ca (Occupational Safety & Health Administration)
	e ingredie	nts is listed.
None of th		

· Toxicity Harmful to aquatic life with long lasting effects.

• Aquatic	toxicity:

EC50	1,001 mg/l (algae) (72 h)	
	1,000 mg/l (daphnia) (48 h)	
LC50 (96h)	101 mg/l (Fish)	
78-93-3 but	anone	
EC50	2,029 mg/l (algae) (96 h)	
	308 mg/l (daphnia) (48 h)	
LC50 (96h)	2,993 mg/l (Fish)	
Persistence	e and degradability No further relevant information available.	
		(Contd. on page 9



Version number 178

Reviewed on 08/04/2022

Printing date 09/23/2022

Product number TV84 Trade name: HARDENER FOR POLYESTER

(Contd. of page 8)

 Substances 	Easily	biodegradable
--------------------------------	--------	---------------

123-42-2 4-hydroxy-4-methylpentan-2-one .

· Behavior in environmental systems:

· Bioaccumulative potential No further relevant information available.

· Mobility in soil $\hat{N}o$ further relevant information available.

- Ecotoxical effects:

• Remark: Harmful to fish • Additional ecological information:

· General notes:

Water hazard class 3 (Self-assessment): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Must not reach bodies of water or drainage ditch undiluted or unneutralized. Danger to drinking water if even extremely small quantities leak into the ground. Harmful to aquatic organisms

• Other adverse effects No further relevant information available.

13 Disposal considerations

· Waste treatment methods

· Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Hand over to hazardous waste disposers.

Dispose of contents and container in accordance with local state and federal regulations.

· Uncleaned packagings:

• Recommendation: Disposal must be made according to official regulations.

· UN-Number	
· DOT, IMDG, IATA	UN3105
· Note	Check viscosity and flash point at section 9
· UN proper shipping name	
· DOT · IMDG, IATA	Organic peroxide type D, liquid (tert-buty hydroperoxide, Methyl ethyl ketone peroxide) ORGANIC PEROXIDE TYPE D, LIQUID (ter
	butyl hydroperoxide, Methyl ethyl keton peroxide)
· Transport hazard class(es)	
·DOT	
· Class	5.2 Organic peroxides
· Label	5.2, 8
· Class	5.2 Organic peroxides



Printing date 09/23/2022

Safety Data Sheet acc. to OSHA HCS

Version number 178

Reviewed on 08/04/2022

Product number TV84 Trade name: HARDENER FOR POLYESTER

	(Contd. of page
· Label	5.2+8
· IMDG	
· Class	5.2 Organic peroxides
· Label	5.2/8
· IATA	
· Class	5.2 Organic peroxides
· Label	5.2 (8)
· Packing group	
· DOT, IMDG, IATA	Not applicable
• Environmental hazards: • Marine pollutant:	No
· Special precautions for user	Warning: Organic peroxides
Hazard identification number (Ke	
· EMS Number: · Stowage Category	F-J,S-R D
· Stowage Code	SW1 Protected from sources of heat.
· Segregation Code	SG35 Stow "separated from" SGG1-acids
Segregation Coue	SG36 Stow "separated from" SGG18-alkalis.
	SG72 See 7.2.6.3.2.
· Transport in bulk according to Ann	
MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
·IMDG	
· Limited quantities (LQ)	125 ml
\cdot Excepted quantities (EQ)	Code: E0
	Not permitted as Excepted Quantity
· UN "Model Regulation":	UN 3105 ORGANIC PEROXIDE TYPE D, LIQUI
-	(TERT-BUTYL HYDROPEROXIDE, METHY
	ETHYL KETONE PEROXIDE), 5.2 (8)

15 Regulatory information

.

 Safety, health and environmental regulations/legislation specific for the substance or mixture Requirements of Federal Register Directive 96/82/EC Toxic Limit 1: 50 t

Limit 2: 200 t

(Contd. on page 11)

⁻ US



Version number 178

Reviewed on 08/04/2022

Printing date 09/23/2022

Product number TV84 Trade name: HARDENER FOR POLYESTER

	(Contra of page 10)
· Various regulations	(Contd. of page 10)
· SARA	
Section 355 (extremely hazardous substances):	
None of the ingredients is listed.	
· Section 313 (Specific toxic chemical listings) :	
131-11-3 dimethyl phthalate	50-74.99%
· TSCA (Toxic Substances Control Act):	·
All components have the value ACTIVE.	
· Hazardous Air Pollutants	
131-11-3 dimethyl phthalate	
· Proposition 65	
· Chemicals known to cause cancer:	
None of the ingredients is listed.	
• Chemicals known to cause reproductive toxicity for females:	
None of the ingredients is listed.	
• Chemicals known to cause reproductive toxicity for males:	
None of the ingredients is listed.	
· Chemicals known to cause developmental toxicity:	
None of the ingredients is listed.	
· Carcinogenic categories	
· EPA (Environmental Protection Agency)	
131-11-3 dimethyl phthalate	D 50-74.99%
· TLV (Threshold Limit Value)	
None of the ingredients is listed.	
· NIOSH-Ca (National Institute for Occupational Safety and Health)	
None of the ingredients is listed.	

· National regulations:

The product is subject to be labeled according with the prevailing version of the regulations on hazardous substances.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: IVM Chemicals Srl

- · Contact: See emergency phone
 - Date of preparation / last revision 09/23/2022 / 177
 Abbreviations and acronyms: IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU) LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

(Contd. on page 12)



Printing date 09/23/2022

Safety Data Sheet acc. to OSHA HCS

Version number 178

Reviewed on 08/04/2022

Product number TV84 Trade name: HARDENER FOR POLYESTER

(Con	td. of page 11)
NIOSH: National Institute for Occupational Safety	
OSHA: Occupational Safety & Health	
TLV: Threshold Limit Value	
PEL: Permissible Exposure Limit	
REL: Recommended Exposure Limit	
Flammable Liquids 3: Flammable liquids – Category 3	
Organic Peroxides - Type C: Organic peroxides – Type C/D	
Organic Peroxides - Type D: Organic peroxides – Type C/D	
Acute Toxicity - Oral 4: Acute toxicity – Category 4	
Acute Toxicity - Dermal 3: Acute toxicity – Category 3	
Acute Toxicity - Inhalation 2: Acute toxicity – Category 2	
Skin Corrosion 1B: Skin corrosion/irritation – Category 1B	
Skin Corrosion 1C: Skin corrosion/irritation – Category 1C	
Eye Damage 1: Serious eye damage/eye irritation – Category 1	
Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A	
Sensitization - Skin 1: Skin sensitisation – Category 1 Germ Cell Mutagenicity 2: Germ cell mutagenicity – Category 2	
Carcinogenicity 2: Carcinogenicity – Category 2	
Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category	13
Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2	/ 5
Aquatic Chronic 3: Hazardous to the aquatic environment - long term aquatic hazard – Category 2	
Sources	
REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND	JOFINE
COUNCIL and following amendments	
Agency ECHA web site	
INRS Fiche Toxicologique	
IARC International agency for research on cancer	
* Data compared to the previous version altered.	
	US-