SAFETY DATA SHEET

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

1.1. Product identifier

Product Name MEKTOVI(R) (binimetinib) 15mg Tablet

Product Code(s) PF00013
Synonyms MEK 162-NXA, Binimetinib
Trade Name: Not applicable
Chemical Family: Not determined

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

Recommended Use Pharmaceutical product

1.3. Details of the supplier of the safety data sheet

Pfizer Inc
235 East 42nd Street
New York, New York 10017
1-800-879-3477

Pfizer Ltd
Ramsgate Road
Sandwich, Kent
CT13 9NJ
United Kingdom
+00 44 (0)1304 616161

1.4. Emergency telephone number

Emergency Telephone Chemtrec 1-800-424-9300 International Chemtrec (24 hours):+1-703-527-3887
E-mail address pfizer-MSDS@pfizer.com

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Reproductive toxicity Category 1B
Specific target organ toxicity (repeated exposure) Category 1

OSHA Classification

2.2. Label elements

Signal word Danger

Hazard statements
H360FD - May damage fertility. May damage the unborn child
H372 - Causes damage to organs through prolonged or repeated exposure

Precautionary Statements
P201+P202 - Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P264 - Wash skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves and protective clothing

P308 + P313 - IF exposed or concerned: Get medical advice/attention
P405 - Store locked up
P501 - Dispose of contents/container in accordance with all local and national regulations

2.3. Other hazards

Other hazards

An Occupational Exposure Value has been established for one or more of the ingredients (see Section 8).

Note:

This document has been prepared in accordance with standards for workplace safety, which require the inclusion of all known hazards of the product or its ingredients regardless of the potential risk. The precautionary statements and warnings included may not apply in all cases. Your needs may vary depending upon the potential for exposure in your workplace.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Substances

Not applicable

3.2 Mixtures

Hazardous

Chemical Name	EC No	CAS No	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH Registration Number
MEK-162 (Binimetinib)	Not Listed	606143-89-9	6 - 10	Repr 1B(H360FD)RE 1(H372)	
Titanium oxide	235-236-5	12137-20-1	*	Not Listed	
Talc (non-asbestiform)	238-877-9	14807-96-6	*	Not Listed	
Silica colloidal, Ph. Eur.	Not Listed	112945-52-5	*	Not Listed	
Microcrystalline cellulose	232-674-9	9004-34-6	*	Not Listed	
Magnesium Stearate	209-150-3	557-04-0	*	Not Listed	
Lactose NF, monohydrate	Not Listed	64044-51-5	*	Not Listed	
Black Iron Oxide	215-277-5	1317-61-9	*	Not Listed	

NonHazardous

Chemical Name	EC No	CAS No	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH Registration Number
Polyvinyl alcohol	Not Listed	9002-89-5	*	Not Listed	
Macrogol 3350	Not Listed	NOT ASSIGNED	*	Not Listed	
Ferric oxide yellow	257-098-5	51274-00-1	*	Not Listed	
Croscarmellose sodium	Not Listed	74811-65-7	*	Not Listed	

Full text of H- and EUH-phrases: see section 16

Additional information

* Proprietary
Ingredient(s) indicated as hazardous have been assessed under standards for workplace

safety.

Section 4: FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation Remove to fresh air. Seek immediate medical attention/advice.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Remove contaminated clothing. Flush area with large amounts of water. Use soap. Seek medical attention.

Ingestion Never give anything by mouth to an unconscious person. Wash out mouth with water. Do not induce vomiting unless directed by medical personnel. Seek medical attention immediately.

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

Most important symptoms and effects For information on potential signs and symptoms of exposure, See Section 2 - Hazards Identification and/or Section 11 - Toxicological Information.

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

Note to physicians None.

Section 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media Dry chemical, CO2, alcohol-resistant foam or water spray.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical Fine particles (such as dust and mists) may fuel fires/explosions.

Hazardous combustion products May emit toxic fumes of oxides of carbon and nitrogen. May include products of fluorine, bromine.

5.3. Advice for firefighters

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Personnel involved in clean-up should wear appropriate personal protective equipment (see Section 8). Minimize exposure.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions Place waste in an appropriately labeled, sealed container for disposal. Care should be taken to avoid environmental release.

6.3. Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.
Methods for cleaning up Contain the source of spill if it is safe to do so. Collect spilled material by a method that controls dust generation. A damp cloth or a filtered vacuum should be used to clean spills of dry solids. Clean spill area thoroughly.
Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

Section 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Advice on safe handling
Minimize dust generation and accumulation. If tablets or capsules are crushed and/or broken, avoid breathing dust and avoid contact with eyes. Wash thoroughly after handling. Releases to the environment should be avoided. Review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure or environmental releases. Potential points of process emissions of this material to the atmosphere should be controlled with dust collectors, HEPA filtration systems or other equivalent controls.
General hygiene considerations Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Store as directed by product packaging.

7.3. Specific end use(s)

Specific use(s) Pharmaceutical product.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure Limits
Refer to available public information for specific member state Occupational Exposure Limits.

MEK-162 (Binimetinib)
Pfizer OEL TWA-8 Hr: 30 µg/m^3

Titanium oxide

Bulgaria	1.0 mg/m^3
Poland	STEL: 30 mg/m^3
	10 mg/m^3

Talc (non-asbestiform)

ACGIH TLV	2 mg/m^3
Austria	2 mg/m^3
Bulgaria	1.0 fiber/cm3
	6.0 mg/m^3
	3.0 mg/m^3
Czech Republic	2.0 mg/m^3
Denmark	0.3 fiber/cm3
Finland	0.5 fiber/cm3
	STEL: 2 ppm
	STEL: 1 ppm
Hungary	2 mg/m^3
Ireland	10 mg/m^3
	0.8 mg/m^3
	STEL: 30 mg/m^3

	STEL: 2.4 mg/m³
Netherlands	0.25 mg/m³
Poland	4 mg/m³
	1 mg/m³
Romania	2 mg/m³
Spain	2 mg/m³
Switzerland	2 mg/m³
OSHA PEL	(vacated) TWA: 2 mg/m³ respirable dust <1% Crystalline silica, containing no Asbestos
	20 mppcf
United Kingdom	TWA: 1 mg/m³
	STEL: 3 mg/m³
Silica colloidal, Ph. Eur.	
Austria	4 mg/m³
Germany	4 mg/m³
Polyvinyl alcohol	
Russia	MAC: 10 mg/m³
Microcrystalline cellulose	
ACGIH TLV	10 mg/m³
Denmark	1 mg/m³
Estonia	10 mg/m³ 2 mg/m³
France	10 mg/m³ 1 mg/m³
Hungary	5 mg/m³
Ireland	10 mg/m³
	STEL: 30 mg/m³
Italy	5.00 mg/m³
Latvia	2 mg/m³ 6 mg/m³
Romania	10 mg/m³
Russia	TWA: 6 mg/m³
	MAC: 10 mg/m³
Spain	10 mg/m³
Switzerland	3 mg/m³ 2 mg/m³
OSHA PEL	15 mg/m³
	5 mg/m³
	(vacated) TWA: 15 mg/m³ total dust
	(vacated) TWA: 5 mg/m³ respirable fraction (vacated) TWA: 5 mg/m³
	(vacated) STEL: 10 mg/m³
United Kingdom	TWA: 10 mg/m³
	TWA: 4 mg/m³
	STEL: 20 mg/m³
	STEL: 12 mg/m³
Magnesium Stearate	
ACGIH TLV	10 mg/m³
	3 mg/m³
Ireland	10 mg/m³
	STEL: 30 mg/m³
Spain	10 mg/m³

8.2. Exposure controls

Engineering controls Engineering controls should be used as the primary means to control exposures. General room ventilation is adequate unless the process generates dust, mist or aerosols. Keep airborne contamination levels below the exposure limits listed above in this section.

Environmental exposure controls No information available.

Personal protective equipment Refer to applicable national standards and regulations in the selection and use of personal protective equipment (PPE). Contact your safety and health professional or safety equipment supplier for assistance in selecting the correct protective clothing/equipment

based on an assessment of the workplace conditions, other chemicals used or present in the workplace and specific operational processes.

Eye/face protection Wear safety glasses or goggles if eye contact is possible. (Eye protection must meet the standards in accordance with EN166, ANSI Z87.1 or international equivalent.).

Hand protection Impervious gloves (e.g. Nitrile, etc.) are recommended if skin contact with drug product is possible and for bulk processing operations. (Protective gloves must meet the standards in accordance with EN374, ASTM F1001 or international equivalent.).

Skin and body protection Impervious protective clothing is recommended if skin contact with drug product is possible and for bulk processing operations. (Protective clothing must meet the standards in accordance with EN13982, ANSI 103 or international equivalent.).

Respiratory protection Under normal conditions of use, if the applicable Occupational Exposure Limit (OEL) is exceeded, wear an appropriate respirator with a protection factor sufficient to control exposures to below the OEL (e.g. particulate respirator with a full mask, P3 filter). (Respirators must meet the standards in accordance with EN136, EN143, ASTM F2704-10 or international equivalent.).

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state	Tablet
Color	Yellow
Molecular formula (MF):	Mixture
Molecular weight	Mixture
Odor	No data available.
Odor threshold	No data available

Property	**Values**
pH	
Melting point / freezing point	No data available
Boiling point / boiling range	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Flammability Limit in Air	
Upper flammability limit:	No data available
Lower flammability limit:	No data available
Vapor pressure	No data available
Vapor density	No data available
Relative density	No data available
Water solubility	No data available
Solubility(ies)	No data available
Autoignition temperature	No data available
Decomposition temperature	No data available
Kinematic viscosity	No data available
Dynamic viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available
Partition Coefficient: (Method, pH, Endpoint, Value)	
MEK-162 (Binimetinib)	
Measured 7 Log P 2.1	

9.2. Other information

Liquid Density	No data available
Bulk density	No data available

Resistivity (ohm-m):

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity

Reactivity No data available.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to Mechanical Impact No data available.

Sensitivity to Static Discharge No data available.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions No information available.

10.4. Conditions to avoid

Conditions to avoid Fine particles (such as dust and mists) may fuel fires/explosions.

10.5. Incompatible materials

Incompatible materials As a precautionary measure, keep away from strong oxidizers.

10.6. Hazardous decomposition products

Hazardous decomposition products No data available.

Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Short term Allergic skin reactions might occur following direct contact with this material.

Long Term: Animal studies have shown a potential to cause adverse effects on the fetus.

Known Clinical Effects: Adverse effects associated with therapeutic use include decreased red blood cell count (anemia), lodgement of a blood clot causing blockage (thromboembolism), bone marrow suppression, cardiac toxicity, liver effects, weight loss, constipation,, diarrhea, fatigue, nausea, skin rash, vomiting.

Acute Toxicity: (Species, Route, End Point, Dose)

MEK-162 (Binimetinib)

Rat Oral LD50 > 300 mg/kg

Microcrystalline cellulose

Rat Oral LD50 > 5000 mg/kg

Rabbit Dermal LD50 > 2000 mg/kg

Black Iron Oxide

Rat Oral LD50 >1000 mg/kg

Talc (non-asbestiform)

Rat Oral LD50 > 1600 mg/kg

Magnesium Stearate

Rat Oral LD50 > 2000 mg/kg

Rat Inhalation LC50 > 2000 mg/m ^{3}

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Silica colloidal, Ph. Eur.	= 3160 mg/kg (Rat)	-	-
Polyvinyl alcohol	= 23854 mg/kg (Rat) > 20 g/kg (Rat)	-	-

Microcrystalline cellulose	> 5 g/kg (Rat)	> 2000 mg/kg (Rabbit) > 2 g/kg (Rabbit)	> 5800 mg/m³ (Rat) 4 h
Black Iron Oxide	> 10000 mg/kg (Rat)	-	-

Acute Toxicity Comments: This mixture contains only ingredients which have been subject to a pre-registration according to Regulation (EC) No. 1907/2006 (REACH) For one or more ingredients, the chemical identity has been withheld as a trade secret. A greater than symbol (>) indicates that the toxicity endpoint being tested was not achievable at the highest dose used in the test.

Irritation / Sensitization: (Study Type, Species, Severity)
MEK-162 (Binimetinib)
Skin Sensitization - LLNA Photosensitization Mouse Positive, Moderate
Skin Irritation Rabbit Non-irritating
Microcrystalline cellulose
Skin Irritation Rabbit Non-irritating
Eye Irritation Rabbit Non-irritating

Repeated Dose Toxicity: (Duration, Species, Route, Dose, End Point, Target Organ)
MEK-162 (Binimetinib)
28 Day(s) Monkey Oral 3 mg/kg/day NOAEL Gastrointestinal System, Bone marrow
28 Day(s) Rat Oral 10 mg/kg/day LOEL Heart, Lungs, Gastrointestinal system, Kidney
26 Week(s) Rat Oral 1 (F) 3 (M) mg/kg/day LOAEL Skin, Bone Marrow, Gastrointestinal system, Heart, Lungs, Kidney
39 Week(s) Monkey Oral 2 mg/kg/day LOAEL Gastrointestinal system, Bone Marrow
Magnesium Stearate
13 Week(s) Rat Oral 1092 g/kg LOAEL Liver

Reproduction & Development Toxicity: (Duration, Species, Route, Dose, End Point, Effect(s))
MEK-162 (Binimetinib)
Embryo / Fetal Development Rat Oral 10 mg/kg/day NOAEL Maternal toxicity, Fetotoxicity, Fertility
Embryo / Fetal Development Rabbit Oral 2 mg/kg/day NOAEL Fertility, Maternal Toxicity, Embryotoxicity

Genetic Toxicity: (Study Type, Cell Type/Organism, Result)
MEK-162 (Binimetinib)
Bacterial Mutagenicity (Ames) *Salmonella* , *E. coli* Negative
In Vitro Mammalian Cell Mutagenicity Mouse Lymphoma Negative
In Vivo Micronucleus Rat Negative

Carcinogenicity See below
Talc (non-asbestiform)
IARC Group 3 (Not Classifiable)
Silica colloidal, Ph. Eur.
IARC Group 3 (Not Classifiable)
Polyvinyl alcohol
IARC Group 3 (Not Classifiable)
Microcrystalline cellulose
IARC Group 1 (Carcinogenic to Humans)
NTP Known Human Carcinogen

Section 12: ECOLOGICAL INFORMATION

Environmental Overview: Releases to the environment should be avoided.

12.1. Toxicity

Aquatic Toxicity: (Species, Method, End Point, Duration, Result)
MEK-162 (Binimetinib)
Fish LC50 96 hours > 16 mg/l
Daphnia magna (Water Flea) EC50 48 hours > 16 mg/l
Pseudokirchneriella subcapitata (Green Alga) ErC50 72 Hours > 19 mg/l
Aquatic Toxicity Comments: A greater than symbol (>) indicates that aquatic toxicity was not observed at the maximum dose tested.
Bacterial Inhibition: (Inoculum, Method, End Point, Result)
MEK-162 (Binimetinib)
Activated sludge EC50 > 1000 mg/l

12.2. Persistence and degradability

Persistence and degradability Not readily biodegradable.

Biodegradation: (Method, Inoculum, Biodeg Study, Result, Endpoint, Duration, Classification)
MEK-162 (Binimetinib)
Activated sludge Ready 1-7 % After 28 Day(s) Not readily biodegradable

12.3. Bioaccumulative potential

Bioaccumulation None known.

Partition Coefficient: (Method, pH, Endpoint, Value)
MEK-162 (Binimetinib)
Measured 7 Log P 2.1

12.4. Mobility in soil

Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment No information available.

Chemical Name	PBT and vPvB assessment
Talc (non-asbestiform)	The substance is not PBT / vPvB
Ferric oxide yellow	The substance is not PBT / vPvB PBT assessment does not apply
Black Iron Oxide	The substance is not PBT / vPvB PBT assessment does not apply

12.6. Other adverse effects

Other adverse effects No information available.

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Dispose of waste in accordance with all applicable laws and regulations. Member State specific and Community specific provisions must be considered. Considering the relevant known environmental and human health hazards of the material, review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure and environmental release. It is recommended that waste minimization be practiced. The best available technology should be utilized to prevent environmental releases. This may include destructive techniques for waste and wastewater.

Section 14: TRANSPORT INFORMATION

The following refers to all modes of transportation unless specified below.

Not regulated for transport under USDOT, EUADR, IATA, or IMDG regulations.

Section 15: REGULATORY INFORMATION

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

MEK-162 (Binimetinib)

CERCLA/SARA Section 313 de minimus %	Not Listed
California Proposition 65	Not Listed
EINECS	Not Listed
Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)	Schedule 4

Titanium oxide

CERCLA/SARA Section 313 de minimus %	Not Listed
California Proposition 65	Not Listed
TSCA	Present
EINECS	235-236-5
AICS	Present

Talc (non-asbestiform)

CERCLA/SARA Section 313 de minimus %	Not Listed
California Proposition 65	Not Listed
TSCA	Present
EINECS	238-877-9
AICS	Present

Silica colloidal, Ph. Eur.

CERCLA/SARA Section 313 de minimus %	Not Listed
California Proposition 65	Not Listed
EINECS	Not Listed
AICS	Present

Polyvinyl alcohol

CERCLA/SARA Section 313 de minimus %	Not Listed
California Proposition 65	Not Listed
TSCA	Present
EINECS	Not Listed
AICS	Present

Microcrystalline cellulose

CERCLA/SARA Section 313 de minimus %	Not Listed
California Proposition 65	carcinogen 12/18/2009
TSCA	Present
EINECS	232-674-9
AICS	Present

Magnesium Stearate

CERCLA/SARA Section 313 de minimus %	Not Listed
California Proposition 65	Not Listed
TSCA	Present
EINECS	209-150-3
AICS	Present

Lactose NF, monohydrate

CERCLA/SARA Section 313 de minimus %	Not Listed

California Proposition 65	Not Listed
EINECS	Not Listed
AICS	Present

Ferric oxide yellow

CERCLA/SARA Section 313 de minimus %	Not Listed
California Proposition 65	Not Listed
TSCA	Present
EINECS	257-098-5
AICS	Present
Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)	Schedule 5 Schedule 6 Schedule 2 Schedule 4

Croscarmellose sodium

CERCLA/SARA Section 313 de minimus %	Not Listed
California Proposition 65	Not Listed
EINECS	Not Listed
AICS	Present

Black Iron Oxide

CERCLA/SARA Section 313 de minimus %	Not Listed
California Proposition 65	Not Listed
TSCA	Present
EINECS	215-277-5
AICS	Present
Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)	Schedule 5 Schedule 6 Schedule 2 Schedule 4

15.2. Chemical safety assessment

Chemical Safety Report No information available

Section 16: OTHER INFORMATION

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3
Sensitization, skin-Cat.1; H317 - May cause an allergic skin reaction Specific target organ toxicity, repeated exposure-Cat.1; H372 - Causes damage to organs through prolonged or repeated exposure Reproductive toxicity-Cat.1B; H360FD - May damage fertility. May damage the unborn child

Data Sources: Pfizer proprietary drug development information.

Reason for revision New data sheet.

Revision date 06-Mar-2020

Prepared By Product Stewardship Hazard Communication
Pfizer Global Environment, Health, and Safety Operations

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