SAFETY DATA SHEET

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

Contact information

**General**

TESARO, Inc.
1000 Winter Street North - Suite #3300, Waltham, MA 02451
Main: +1 (339) 970-0900 (Available M-F, 9 am - 5 pm EST)
E-mail: contact@tesaro.com

**Emergency telephone number**

Chemtrec (24-hour availability):
+1 (800) 424-9300 (USA and Canada)
+1 (703) 527-3887 (International; collect calls accepted)

**Product identifier**

ZEJULA® (Niraparib) Capsules, for oral use

**Synonyms**

For niraparib: (S)-2-(4-(piperidin-3-yl)phenyl)-2H-indazole-7-carboxamide 4-methylbenzene sulfonate hydrate; (3S)-3-([7-(Aminocarbonyl)-2H-indazol-2-yl]phenyl)piperidine (tosylate salt monohydrate); MK-4827; C-023971

**Trade names**

ZEJULA®

**Chemical family**

Mixture - contains an indazole

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

Bulk formulated pharmaceutical mixture/Formulated pharmaceutical product/mixture in form for patient use; for the maintenance treatment of various cancers.

**Note**

This SDS is written to address potential worker health and safety issues associated with the handling of the active pharmaceutical mixture. The physical, chemical and ecological properties of this product/mixture have not been fully characterized. This SDS will be revisited as more data become available.

SECTION 2 - HAZARDS IDENTIFICATION

**Classification of the substance or mixture**

Drugs in the finished state and intended for the final user are not subject to labeling in the US, EU or Canada. Consult prescribing/packaging information. The classification and labeling listed below is for bulk drug product.
### SECTION 2 - HAZARDS IDENTIFICATION …continued

Globally Harmonized System [GHS]  

#### Label elements

**GHS hazard pictogram**

![GHS hazard pictogram]

**GHS signal word**  
Danger

**GHS hazard statements**

- H302 - Harmful if swallowed.  
- H341 - Suspected of causing genetic defects.  
- H361fd - Suspected of damaging fertility.  
- H373 - May cause damage to bone marrow and lymphoid tissues through prolonged or repeated exposure.

**GHS precautionary statements**

- P201 - Obtain special instructions before use.  
- P260 - Do not breathe dust.  
- P308 + P313 - IF exposed or concerned: get medical advice/attention.  
- P405 - Store locked up.  
- P501 - Dispose of contents/container to location in accordance with local/regional/national/international regulations.  
- P264 - Wash hands thoroughly after handling.  
- P270 - Do not eat, drink or smoke when using this product.  
- P301+P312: IF SWALLOWED: Call a Poison Center or doctor/physician if you feel unwell.

**Other hazards**

Niraparib (administered as a tosylate monohydrate salt) is a potent PARP inhibitor that exerts antitumorigenic activity. Adverse effects noted with oral dosing in clinical trials were myelosuppression (anemia, thrombocytopenia, and neutropenia), gastrointestinal effects (nausea, vomiting, anorexia, and constipation), and fatigue. Based on its mechanism of action, potentials for increased infection and bruising, as well as for developmental and fertility effects cannot be excluded in the absence of definitive data.

**Note**

This mixture is classified as hazardous under GHS as implemented by Regulation EC No 1272/2008 (EU CLP), WHMIS 2015 (Health Canada), and Hazard Communication Standard No. 1910.1200 (US OSHA).

### SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS #</th>
<th>EINECS/ELINCS#</th>
<th>Amount</th>
<th>GHS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niraparib tosylate monohydrate</td>
<td>1613220-15-7</td>
<td>N/A</td>
<td>30-50 %</td>
<td>ATO4: H302; GCM2: H341; RT2: H361fd; STOT-R1: H372</td>
</tr>
<tr>
<td>Magnesium Stearate</td>
<td>557-04-0</td>
<td>209-150-3</td>
<td>&lt;2 %</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

Tesaro #5 - ZEJULA® (Niraparib) Capsules, for oral use  
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SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS …continued

Note
The ingredient(s) listed above is considered hazardous. Magnesium stearate is listed because it has OELs and is present at or above 1%. The remaining components are not hazardous and/or present at amounts below reportable limits. See Section 16 for full text of GHS classifications.

SECTION 4 - FIRST AID MEASURES

Description of first aid measures

<table>
<thead>
<tr>
<th>Immediate Medical Attention Needed</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Contact</td>
<td>If easy to do, remove contact lenses, if worn. Immediately flush eyes with copious quantities of water for at least 15 minutes. If irritation occurs or persists, notify medical personnel and supervisor.</td>
</tr>
<tr>
<td>Skin Contact</td>
<td>Wash exposed area with soap and water and remove contaminated clothing/shoes. If irritation occurs or persists, notify medical personnel and supervisor.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Immediately move exposed subject to fresh air. If not breathing, give artificial respiration. If breathing is labored, administer oxygen. Immediately notify medical personnel and supervisor.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Do not induce vomiting unless directed by medical personnel. Do not give anything to drink unless directed by medical personnel. Never give anything by mouth to an unconscious person. Notify medical personnel and supervisor.</td>
</tr>
</tbody>
</table>

Protection of first aid responders
See Section 8 for Exposure Controls/Personal Protection recommendations.

Most important symptoms and effects, both acute and delayed
See Sections 2 and 11.

Indication of immediate medical attention and special treatment needed, if necessary
Niraparib is a selective PARP inhibitor. Medical conditions aggravated by exposure: None known or reported. Treat symptomatically and supportively. If accidental exposure occurs to an individual who is also taking one or more concomitant medications, consult the respective package or prescribing information for potential drug-drug interactions.

SECTION 5 - FIREFIGHTING MEASURES

Extinguishing media
Use water spray (fog), foam, dry powder, or carbon dioxide, as appropriate for surrounding fire and materials.

Specific hazards arising from the substance or mixture
No information identified. May emit carbon monoxide, carbon dioxide, oxides of nitrogen and sulfur, and other nitrogen- and sulfur-containing compounds.
## SECTION 5 - FIREFIGHTING MEASURES

<table>
<thead>
<tr>
<th>Flammability/Explosivity</th>
<th>No information identified.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advice for firefighters</td>
<td>Wear full protective clothing and a self-contained breathing apparatus with a full facepiece operated in the pressure demand or other positive pressure mode. Decontaminate all equipment after use.</td>
</tr>
</tbody>
</table>

## SECTION 6 - ACCIDENTAL RELEASE MEASURES

<table>
<thead>
<tr>
<th>Personal precautions, protective equipment and emergency procedures</th>
<th>If capsules are opened/crushed/broken, take proper precautions to minimize exposure by using appropriate personal protective equipment (see Section 8). Area should be adequately ventilated. Do not breathe dust.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental precautions</td>
<td>Do not empty into drains. Avoid release to the environment.</td>
</tr>
<tr>
<td>Methods and material for containment and cleaning up</td>
<td>If capsules are spilled, scoop up and dispose of in a manner that is compliant with federal, state or local laws. If capsules are opened/crushed/broken, DO NOT RAISE DUST. Surround spill or powder with absorbents and place a damp cloth or towel over the area to minimize entry of powder into the air. Add excess liquid to allow the material to enter into solution. Capture remaining liquid onto spill absorbents. Place spill materials into a leak-proof container for disposal in accordance with applicable waste disposal regulations (see section 13). Decontaminate the area twice.</td>
</tr>
<tr>
<td>Reference to other sections</td>
<td>See Sections 8 and 13 for more information.</td>
</tr>
</tbody>
</table>

## SECTION 7 - HANDLING AND STORAGE

<table>
<thead>
<tr>
<th>Precautions for safe handling</th>
<th>If capsules are opened/crushed/broken, dust containing drug substance may be released. Minimize dust generation and accumulation. Follow recommendations for handling potent pharmaceutical agents (i.e., use of engineering controls and/or other personal protective equipment if needed). Avoid breathing dust. Wash thoroughly after handling.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditions for safe storage including any incompatibilities</td>
<td>Store at controlled room temperature between 20°C to 25°C (68°F to 77°F), excursions are permitted between 15°C to 30°C (59°F to 86°F), in a well-ventilated place with container tightly closed, away from incompatible materials. Avoid extreme temperatures. Protect from direct sunlight and moisture.</td>
</tr>
<tr>
<td>Specific end use(s)</td>
<td>No information identified.</td>
</tr>
</tbody>
</table>
## SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

### Note
Wash hands, face and other potentially exposed areas immediately in the event of physical contact.

### Control Parameters/Occupational Exposure Limit Values

<table>
<thead>
<tr>
<th>Compound</th>
<th>Issuer</th>
<th>Type</th>
<th>OEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niraparib tosylate monohydrate</td>
<td>Tesaro</td>
<td>8-hour TWA</td>
<td>2 µg/m³</td>
</tr>
<tr>
<td>Magnesium Stearate</td>
<td>ACGIH</td>
<td>TWA-8 HR</td>
<td>10 mg/m³ (stearates)</td>
</tr>
<tr>
<td></td>
<td>Lithuania</td>
<td>TWA-8 HR</td>
<td>3 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Sweden</td>
<td>TWA-8 HR</td>
<td>5 mg/m³</td>
</tr>
</tbody>
</table>

### Exposure/Engineering controls
None required for normal handling of packaged product. If handling bulk product and/or capsules are opened/crushed/broken: Control exposures to below the OEL for the active ingredient (if available). Otherwise, selection and use of containment devices and personal protective equipment should be based on a risk assessment of exposure potential. Open handling should not be performed when handling potent substances, or substances of unknown toxicity. Material should be handled inside a closed process, ventilated enclosure, isolator or device of equivalent or better control that is suitable for dusts and/or aerosols.

### Respiratory protection
None required for normal handling of packaged product. If handling bulk product and/or capsules are opened/crushed/broken: Choice of respiratory protection should be appropriate to the task and the level of existing engineering controls. For routine powder handling tasks, an approved and properly worn powered air-purifying respirator equipped with HEPA filters or combination filters should provide ancillary protection based on the known or foreseeable limitations of existing engineering controls. Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, when exposure levels are not known, or in any other circumstances where air purifying respirators may not provide adequate protection.

### Hand protection
None required for normal handling of packaged product. Wear nitrile or other impervious gloves if skin contact with capsules is possible.

### Skin protection
Wear appropriate gloves, lab coat, or other protective overgarment if skin contact is likely. Base the choice of skin protection on the job activity, potential for skin contact and solvents and reagents in use.

### Eye/face protection
None required for normal handling of packaged product. Wear safety glasses with side shields if eye contact is likely, e.g., during clean up of large spill. Base the choice of protection on the job activity and potential for contact with eyes and face.

### Environmental Exposure Controls
Avoid release to the environment and operate within closed systems wherever practicable. Air and liquid emissions should be directed to appropriate pollution control devices. In case of spill, do not release to drains. Implement appropriate and effective emergency response procedures to prevent release or spread of contamination and to prevent inadvertent contact by personnel.
## SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION  
…continued

**Other protective measures**

Wash hands in the event of contact with this substance, especially before eating, drinking or smoking. Protective equipment is not to be worn outside the work area (e.g., in common areas or out-of-doors).

## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td>Powder in 2-part capsule</td>
</tr>
<tr>
<td><strong>Color</strong></td>
<td>Purple and white</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>No particular odor</td>
</tr>
<tr>
<td><strong>Odor threshold</strong></td>
<td>No information identified.</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>Neutral (in 10% aqueous solution) (niraparib)</td>
</tr>
<tr>
<td><strong>Melting point/freezing point</strong></td>
<td>Melts at 144 °C (niraparib)</td>
</tr>
<tr>
<td><strong>Initial boiling point and boiling range</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>No information identified.</td>
</tr>
<tr>
<td><strong>Upper/lower flammability or explosive limits</strong></td>
<td>No information identified.</td>
</tr>
<tr>
<td><strong>Vapor pressure</strong></td>
<td>No information identified.</td>
</tr>
<tr>
<td><strong>Vapor density</strong></td>
<td>No information identified.</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>No information identified.</td>
</tr>
<tr>
<td><strong>Water solubility</strong></td>
<td>Very slightly soluble (niraparib)</td>
</tr>
<tr>
<td><strong>Solvent solubility</strong></td>
<td>Slightly Soluble in Acetone (niraparib)</td>
</tr>
<tr>
<td></td>
<td>Soluble in DMF and Methyl Alcohol (niraparib)</td>
</tr>
<tr>
<td></td>
<td>Freely Soluble in DMSO (niraparib)</td>
</tr>
<tr>
<td><strong>Partition coefficient</strong></td>
<td>Log10 Pow = -0.6 (pH5), 0.2 (pH7), and 2.1 (pH9) (niraparib)</td>
</tr>
<tr>
<td><strong>Auto-ignition temperature</strong></td>
<td>No information identified.</td>
</tr>
</tbody>
</table>
SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES  …continued

Decomposition temperature
No information identified.

Viscosity
Not applicable.

Explosive properties
No information identified.

Oxidizing properties
No information identified.

Other information

Molecular formula
Not applicable (Mixture)

Molecular weight
Not applicable (Mixture)

SECTION 10 - STABILITY AND REACTIVITY

Reactivity
No information identified.

Chemical stability
Stable under normal handling and storage conditions.

Possibility of hazardous reactions
No information identified.

Conditions to avoid
Avoid extreme temperatures. Avoid direct sunlight and conditions that might generate heat.

Incompatible materials
Strong oxidizers, bases.

Hazardous decomposition products
See Section 5 - Hazardous combustion products.

SECTION 11 - TOXICOLOGICAL INFORMATION

Note
No data on product formulation. The following information is for niraparib (the active ingredient) and other ingredients, where applicable.

Information on toxicological effects

Route of entry
May be absorbed by inhalation, skin contact and ingestion.

Acute toxicity

<table>
<thead>
<tr>
<th>Compound</th>
<th>Type</th>
<th>Route</th>
<th>Species</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niraparib tosylate</td>
<td>Minimum</td>
<td>Oral</td>
<td>Rat</td>
<td>750 mg/kg (8-day study)</td>
</tr>
<tr>
<td>monohydrate</td>
<td>Lethal Dose</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnesium Stearate</td>
<td>LC₅₀</td>
<td>Inhalation</td>
<td>Rat</td>
<td>&gt;2000 mg/m³</td>
</tr>
</tbody>
</table>

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SECTION 11 - TOXICOLOGICAL INFORMATION …continued

Additional acute toxicity information
No LD₅₀ values were identified. In rats, mortality (attributed to bone marrow toxicity) was reported on days 5 and 6 of an 8-day study at an oral dose of 750 mg/kg/day. No lethality was seen in rats at 100 mg/kg/day in that study. In dogs, no mortality was observed in a 10-day study at an oral dose of 40.5 mg/kg/day (the highest dose tested).

Irritation/Corrosion
No studies identified.

Sensitization
No studies identified.

STOT-single exposure
No studies identified.

STOT-repeated exposure/Repeat-dose toxicity
In repeat-dose rat studies up to 90 days in duration, the primary treatment-related effects were mild bone/bone marrow toxicity that occurred at oral doses ≥30 mg/kg/day. With the exception of a minimal increased amount of trabecula in the bone and minor arterial hypertrophy in the heart, all effects were reversible. A NOAEL of 10 mg/kg/day was identified.

In repeat-dose dog studies up to 90 days in duration, the primary treatment-related effects were reversible hematological and spermatogenic effects that occurred at oral doses ≥12 and ≥6 mg/kg/day, respectively. A NOAEL of 4.5 mg/kg/day was identified.

Reproductive toxicity
No studies identified.

Developmental toxicity
No studies identified.

Genotoxicity
Niraparib tosylate monohydrate was negative in the Ames bacterial mutagenicity assay, although the hydrochloride salt yielded a positive result. Niraparib was also positive in vitro (an alkaline elution assay for DNA strand breaks in rat hepatocytes and chromosomal aberrations in Chinese hamster ovarian cells) and in vivo (rat bone marrow micronucleus assay).

Carcinogenicity
No studies identified. None of the components of the mixture present at levels greater than or equal to 0.1% are listed by NTP, IARC, ACGIH or OSHA as a carcinogen.

Aspiration hazard
No data available.

Human health data
See "Section 2 - Other Hazards"

SECTION 12 - ECOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Compound</th>
<th>Type</th>
<th>Species</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Niraparib tosylate</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>monohydrate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Magnesium Stearate</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

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SECTION 12 - ECOLOGICAL INFORMATION …continued

Persistence and Degradability
No data available.

Bioaccumulative potential
The octanol/water partition coefficient (log10 Pow) of niraparib at pH5, pH7 and pH9 is respectively -0.6, 0.2 and 2.1, suggesting a low potential for bioaccumulation.

Mobility in soil
No data available.

Results of PBT and vPvB assessment
A PBT assessment was not performed because the log10 Pow is under 3, suggesting a low potential for bioaccumulation.

Other adverse effects
No data available.

Note
Ecological characteristics of this mixture were not available. Releases to the environment should be avoided.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste treatment methods
Dispose of wastes in accordance to prescribed federal, state, and local guidelines, e.g., appropriately permitted chemical waste incinerator. Do not send down the drain or flush down the toilet. All wastes containing the material should be properly labeled. Rinse waters resulting from spill cleanups should be discharged in an environmentally safe manner, e.g., appropriately permitted municipal or on-site wastewater treatment facility.

SECTION 14 - TRANSPORT INFORMATION

Transport
Based on the available data, this product/mixture is not regulated as a hazardous material/dangerous good under EU ADR/RID, US DOT, Canada TDG, IATA, or IMDG.

UN number
None assigned.

UN proper shipping name
None assigned.

Transport hazard classes and packing group
None assigned.

Environmental hazards
Based on the available data, this product/mixture is not regulated as an environmental hazard or a marine pollutant.

Special precautions for users
Due to lack of data, avoid release to the environment.
SECTION 14 - TRANSPORT INFORMATION …continued

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not applicable.

SECTION 15 - REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture
This SDS generally complies with the requirements listed under current guidelines in the US, EU and Canada. Consult your local or regional authorities for more information.

Chemical safety assessment
Not conducted.

TSCA status
Drugs are exempt from TSCA.

SARA section 313
Not listed.

California proposition 65
Not listed.

Additional information
No other information identified.

SECTION 16 - OTHER INFORMATION

Full text of H phrases and GHS classifications

Sources of data
Information from published literature and internal company data.

Abbreviations
ACGIH - American Conference of Governmental Industrial Hygienists; ADR/RID - European Agreement Concerning the International Carriage of Dangerous Goods by Road/Rail; AIHA - American Industrial Hygiene Association; CAS# - Chemical Abstract Services Number; CLP - Classification, Labelling, and Packaging of Substances and Mixtures; DNEL - Derived No Effect Level; DOT - Department of Transportation; EINECS - European Inventory of New and Existing Chemical Substances; ELINCS - European List of Notified Chemical Substances; EU - European Union; GHS - Globally Harmonized System of Classification and Labeling of Chemicals; IARC - International Agency for Research on Cancer; IDLH - Immediately Dangerous to Life or Health; IATA - International Air Transport Association; IMDG - International Maritime Dangerous Goods; LOEL - Lowest Observed Effect Level; LOAEL - Lowest Observed Adverse Effect Level; NIOSH - The National Institute for Occupational Safety and Health; NOEL - No Observed Effect Level; NOAEL - No Observed Adverse Effect Level; NTP - National Toxicology Program; OEL - Occupational Exposure Limit; OSHA -
SECTION 16 - OTHER INFORMATION …continued

Abbreviations

Occupational Safety and Health Administration; PNEC - Predicted No Effect Concentration; SARA - Superfund Amendments and Reauthorization Act; STOT - Specific Target Organ Toxicity; STEL - Short Term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; WHMIS - Workplace Hazardous Materials Information System

Issue Date
10 November 2017

Revisions
Updated product identifier in Section 1 and data in Sections 11 and 12.

Disclaimer
The above information is based on data available to us and is believed to be correct. Since the information may be applied under conditions beyond our control and with which we may be unfamiliar, we do not assume any responsibility for the results of its use and all persons receiving it must make their own determination of the effects, properties and protections which pertain to their particular conditions.

No representation, warranty, or guarantee, express or implied (including a warranty of fitness or merchantability for a particular purpose), is made with respect to the materials, the accuracy of this information, the results to be obtained from the use thereof, or the hazards connected with the use of the material. Caution should be used in the handling and use of the material because it is a potent pharmaceutical product. The above information is offered in good faith and with the belief that it is accurate. As of the date of issuance, we are providing all information relevant to the foreseeable handling of the material. However, in the event of an adverse incident associated with this product, this Safety Data Sheet is not, and is not intended to be, a substitute for consultation with appropriately trained personnel.