

Doxorubicin hydrochloride, USP

PRODUCT DATA SHEET

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Product Name:	Doxorubicin hydrochloride, USP
Product Number:	D005
CAS Number:	25316-40-9
Molecular Formula:	$C_{27}H_{29}NO_{11} \cdot HCl$
Molecular Weight:	579.98
Form:	Powder
Appearance:	Orange-red crystalline powder
Solubility:	Water: Soluble to 50 mM
Source:	<i>Streptomyces Peucetius</i>
Water Content (Karl Fischer):	≤4.0%
pH:	4.0-5.5
Melting Point:	204-205°C
Storage Conditions:	2-8 °C
Description:	Doxorubicin HCl is an anthracycline antibiotic and 12-hydroxylated version of daunorubicin that inhibits macromolecular biosynthesis through DNA intercalation.
Mechanism of Action:	Doxorubicin stops the development of the topoisomerase II enzyme, which relaxes supercoils in DNA for transcription. Doxorubicin stabilizes the topoisomerase II complex after it has broken the DNA chain for replication, which prevents the DNA double helix from being resealed and thereby inhibits the replication process.
Cancer Applications	Doxorubicin is given to treat non-Hodgkin's lymphoma, multiple myeloma, acute leukemias, Kaposi sarcoma, Ewing sarcoma, Wilm tumor, and cancers of the breast, adrenal cortex, endometrium, lung, ovary, and other sites. It is sometimes used to treat non-cancerous conditions as well.