

US EPA ARCHIVE DOCUMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 10 1994

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Memorandum

SUBJECT: Captan: Dietary Exposure Analysis in Support of the Reregistration Eligibility Decision.

FROM: Jennifer M. Wintersteen
Dietary Risk Evaluation Section
Science Analysis Branch/HED (7509C)
Jennifer M. Wintersteen

TO: John C. Redden, Chemical Manager
Chemical Coordination Branch
Health Effects Division (7509C)

THROUGH: William L. Burnam, Branch Chief
Science Analysis Branch
Health Effects Division
W. Burnam

Action Requested

Provide an estimate of chronic, upper bound carcinogenic and acute dietary risks from the uses of captan which are either published or being recommended through reregistration.

Discussion

1. Toxicological Endpoints:

Reference Dose for Chronic Analysis

The HED Reference Dose (RfD) Committee on September 23, 1993 concluded that an RfD for Captan should be established based upon a NOEL of 12.5 mg/kg bwt/day in one- and three- generations reproductive toxicity studies. The LEL was 250 mg/kg bwt/day for decreased pup body weight. An uncertainty factor of 100 was used to account for the inter-species extrapolation and intra-species variability. On this basis the RfD was calculated to be 0.13 mg/kg/day.

Carcinogenicity Classification

Captan is classified as group B2 (probable human carcinogen) for carcinogenicity. The Q_1^* is 3.6×10^{-3} (mg/kg/day)⁻¹ based only on the adenoma and carcinoma of duodenum and jejunum-ileum in male and female ICR-derived CD-mice (Cancer Peer Review 12/29/86 and 7/20/88).



Recycled/Recyclable

incorporated into DRES as per CBRS recommendation. When no information was available to the contrary, 100 percent of crops were assumed treated with captan. This could lead to an overestimation of exposure.

Anticipated Residues

CBRS provided anticipated residues (ARs) for use in chronic dietary risk evaluation and separate ARs for upper bound carcinogenicity risk assessment. ARs for use in the acute dietary risk assessment were also provided (S. Funk memo, 9/22/94). ARs for some commodities were higher than the tolerance or reassessed tolerance for that commodity, e.g., grapes (reassessed tol = 10 ppm, AR = 23 ppm), raisins (reassessed tol = 20 ppm, AR = 46 ppm) and strawberries (tol = 25 ppm, AR = 75 ppm). CBRS explains this unusual situation in a C. Olinger memo dated 10/26/94. All acute ARs recommended by CBRS were used in the acute dietary analysis, whether or not the value was higher than the tolerance or reassessed tolerance for reregistration.

3. Results:

The DRES chronic analysis used tolerance level residues to calculate the Theoretical Maximum Residue Contribution (TMRC) for the overall U.S. population and 22 population subgroups. Refinements in residue information and percent of crop treated were considered in calculating the Anticipated Residue Contribution (ARC) for those same population groups. These exposure estimates were then compared to the RfD for captan.

Chronic Exposure from Supported Uses of Captan for Reregistration Using Tolerances:

The Theoretical Maximum Residue Contribution (TMRC) for the overall U.S. population from published tolerances as well as reassessed tolerances being supported in reregistration are listed below.

<u>Subgroup</u>	<u>Exposure(mg/kg/day)</u>	<u>%Reference Dose</u>
U.S. population	0.035844	28
Non-nursing Infants	0.303975	234

Using Anticipated Residues:

The Anticipated Residue Contribution (ARC) for the overall U.S. population from published uses supported in reregistration are listed below.

<u>Subgroup</u>	<u>Exposure(mg/kg/day)</u>	<u>%Reference Dose</u>
U.S. population	0.001012	1
Non-nursing Infants	0.004537	4

When only the uses supported in reregistration are considered the ARCs for the U.S. population and all DRES subgroups are well below the Reference Dose. THE CHRONIC DIETARY RISK POSED FROM CAPTAN IS NOT OF CONCERN WHEN PUBLISHED COMMODITIES AND COMMODITIES RECOMMENDED THROUGH REREGISTRATION ARE CONSIDERED.

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A second acute analysis was conducted with raw agricultural commodities (RACs) that had acute ARs higher than tolerance level, listed above, included *at tolerance level*. The acute risk was still of concern with an MOE of 56 for the highest exposed individual.. Acute risk from exposure to the estimated 95th percentile consumer for this same scenario was estimated to be 125.

Conclusions

To the extent that this analysis uses anticipated residues, percent-crop-treated information and recommended (not published) tolerances, it is not a "worst-case" picture of the dietary risk from captan. The chronic dietary risk from exposure of captan appears to be of minimal concern, with all DRES subgroups having ARC values well below the RfD.

The upper bound carcinogenic risk from captan, 1.2×10^{-6} , is within the range of risk that the Agency generally considers as negligible.

Acute dietary risk is of concern for the highest exposed individual. DRES notes, however, that while the residue estimates used are likely to be found in the market place the assumption that all foods for which captan has tolerances could be eaten at a single meal is likely an overestimate. Another assumption could be that a large amount of one food eaten at a single meal, for example, oranges, would contain tolerance level residues on each orange eaten at that one meal is again a likely overestimate of acute risk. The high end estimate of acute dietary risk is therefore probably higher than should be expected in the real world.

Finally, the CBRS recommendation of acute ARs from FDA monitoring data with residues *above tolerance level* for grapes, caneberries and strawberries is of great concern from a dietary risk standpoint.

Attachments

cc: DRES, Tox I, CBRS, Caswell #159

Table 1.

ANTICIPATED RESIDUE INFORMATION FOR CASWELL NUMBER 159

DATE: 11/02/94

PAGE: 2

CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Captan Caswell #159 CAS No. 133-06-2 A.I. CODE: 081301 CFR No. 180.103 185.500	3gen reprod- rat NOEL= 12.5000 mg/kg 250.00 ppm LEL= 25.0000 mg/kg 500.00 ppm ONCO: B2 (MED NOTE)	Decreased pup body wts. ADI based on results of 1-gen. and 3-gen. repro- duction studies. Evi- dence of oncogenicity in rats and mice.	ADI UF -->100 OPP RfD= 0.130000 EPA RfD= 0.130000 q*: 0.00360	No data gaps. q* calculated.	EPA verified 03/26/86 HED complete 12/22/88 EPA verified 01/18/89 WHO reviewed 1990 RfD/PR reviewed 09/23/93 On IRIS.

FOOD CODE	FOOD	FOOD FORM	PET.#	TOLERANCE (ppm)	ANTICIPATED RESIDUE (ppm)	AR STATISTIC TYPE	% CROP TREATED	RES. VALUE USED IN TAS RUN (ppm)
04003AA	PEARS-FRESH	62 COOKED-FRESH OR FROZEN-BAKED	15	P 25.000000	0.110000		100.00	0.110000
04003DA	PEARS-DRIED	10 RAW-FRESH OR NFS	15	P 25.000000	0.490000C		100.00	0.490000
04003DA	PEARS-DRIED	21 COOKED-NFS	15	P 25.000000	0.490000C		100.00	0.490000
05001AA	APRICOTS-FRESH	10 RAW-FRESH OR NFS	15	P 10.000000	0.540000		100.00	0.540000
05001AA	APRICOTS-FRESH	21 COOKED-NFS	15	P 10.000000	0.540000		100.00	0.540000
05001AA	APRICOTS-FRESH	31 COOKED-FRESH OR CANNED	15	P 10.000000	0.540000		100.00	0.540000
05001DA	APRICOTS-DRIED	10 RAW-FRESH OR NFS	15	P 10.000000	0.540000		100.00	0.540000
05001DA	APRICOTS-DRIED	22 COOKED-FRESH-BAKED	15	P 10.000000	3.300000C		100.00	3.300000
05002AA	CHERRIES-FRESH	10 RAW-FRESH OR NFS	15	P 50.000000	0.070000		100.00	0.070000
05002AA	CHERRIES-FRESH	21 COOKED-NFS	15	P 50.000000	0.070000		100.00	0.070000
05002AA	CHERRIES-FRESH	31 COOKED-FRESH OR CANNED	15	P 50.000000	0.070000		100.00	0.070000
05002AA	CHERRIES-FRESH	62 COOKED-FRESH OR FROZEN-BAKED	15	P 50.000000	0.070000		100.00	0.070000
05002DA	CHERRIES-DRIED	00 NOT SPECIFIED (NO CONSUMPTION)	15	P 50.000000	0.280000C		100.00	0.280000
05002JA	CHERRIES-JUICE	15 RAW-FRESH OR CANNED	15	P 50.000000	0.110000C		100.00	0.110000
05002JA	CHERRIES-JUICE	21 COOKED-NFS	15	P 50.000000	0.110000C		100.00	0.110000
05003AA	NECTARINES	10 RAW-FRESH OR NFS	15	P 25.000000	0.016000		100.00	0.016000
05004AA	PEACHES-FRESH	10 RAW-FRESH OR NFS	15	P 15.000000	0.530000		100.00	0.530000
05004AA	PEACHES-FRESH	21 COOKED-NFS	15	P 15.000000	0.530000		100.00	0.530000
05004AA	PEACHES-FRESH	31 COOKED-FRESH OR CANNED	15	P 15.000000	0.530000		100.00	0.530000
05004AA	PEACHES-FRESH	51 COOKED-CANNED	15	P 15.000000	0.530000		100.00	0.530000
05004DA	PEACHES-DRIED	10 RAW-FRESH OR NFS	15	P 15.000000	3.800000C		100.00	3.800000
05004DA	PEACHES-DRIED	21 COOKED-NFS	15	P 15.000000	3.800000C		100.00	3.800000
05005AA	PLUMS-FRESH	10 RAW-FRESH OR NFS	15	P 10.000000	0.063000		100.00	0.063000
05005AA	PLUMS-FRESH	31 COOKED-FRESH OR CANNED	15	P 10.000000	0.063000		100.00	0.063000
05005DA	PLUMS-PRUNES	10 RAW-FRESH OR NFS	15	P 10.000000	0.020000		100.00	0.020000
05005DA	PLUMS-PRUNES	21 COOKED-NFS	15	P 10.000000	0.020000		100.00	0.020000
05005DA	PLUMS-PRUNES	31 COOKED-FRESH OR CANNED	15	P 10.000000	0.020000		100.00	0.020000
05005JA	PRUNE-JUICE	10 RAW-FRESH OR NFS	15	P 10.000000	0.100000C		100.00	0.100000
05005JA	PRUNE-JUICE	62 COOKED-FRESH OR FROZEN-BAKED	15	P 10.000000	0.100000C		100.00	0.100000
10002AA	CANTALOUPE-UNSP	00 NOT SPECIFIED (NO CONSUMPTION)	15	P 0.050000	0.010000		5.00	0.000500
10002AB	CANTALOUPE-PULP	10 RAW-FRESH OR NFS	15	P 0.050000	0.010000		5.00	0.000500
10002AB	CANTALOUPE-PULP	21 COOKED-NFS	15	P 0.050000	0.010000		5.00	0.000500
10005AA	HONEYDEW MELONS	10 RAW-FRESH OR NFS	15	P 0.050000	0.010000		5.00	0.000500
10008AA	WATERMELON	10 RAW-FRESH OR NFS	15	P 0.050000	0.010000		5.00	0.000500
10008AA	WATERMELON	21 COOKED-NFS	15	P 0.050000	0.010000		5.00	0.000500
10010AA	CUCUMBERS	10 RAW-FRESH OR NFS	15	P 0.050000	0.010000		100.00	0.010000
10010AA	CUCUMBERS	11 RAW-FRESH-PICKLED, CORNED, OR CURED	15	P 0.050000	0.010000		100.00	0.010000
10010AA	CUCUMBERS	21 COOKED-NFS	15	P 0.050000	0.010000		100.00	0.010000
10011AA	PUMPKIN	21 COOKED-NFS	15	P 0.050000	0.010000		100.00	0.010000
10011AA	PUMPKIN	22 COOKED-FRESH-BAKED	15	P 0.050000	0.010000		100.00	0.010000

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CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Captan Caswell #159 CAS No. 133-06-2 A.I. CODE: 081301 CFR No. 180.103 185.500	3gen repro- rat NOEL= 12.5000 mg/kg 250.00 ppm LEL= 25.0000 mg/kg 500.00 ppm ONCO: B2 (MED NOTE)	Decreased pup body wts. ADI based on results of 1-gen. and 3-gen. repro- duction studies. Evi- dence of oncogenicity in rats and mice.	ADI UF -->100 OPP Rfd= 0.130000 EPA Rfd= 0.130000 q*: 0.00360	No data gaps. q* calculated.	EPA verified 03/26/86 HED-complete 12/22/88 EPA verified 01/18/89 WHO reviewed 1990 Rfd/PR reviewed 09/23/93 On IRIS.

FOOD CODE	FOOD	FOOD FORM	PET.#	TOLERANCE (ppm)	ANTICIPATED RESIDUE (ppm)	AR STATISTIC TYPE	% CROP TREATED	RES. VALUE USED IN TA\$ RUN (ppm)
13024AA	SPINACH	21 COOKED-NFS	15	P 0.050000	0.010000		5.00	0.000500
13024AA	SPINACH	31 COOKED-FRESH OR CANNED	15	P 0.050000	0.010000		5.00	0.000500
13025AA	SWISS CHARD	10 RAW-FRESH OR NFS	REREG	N 0.050000	0.010000		100.00	0.010000
13025AA	SWISS CHARD	31 COOKED-FRESH OR CANNED	REREG	N 0.050000	0.010000		100.00	0.010000
13025AA	SWISS CHARD	63 COOKED-FRESH OR FROZEN-BOILED	REREG	N 0.050000	0.010000		100.00	0.010000
13026AA	TURNIPS-TOPS	10 RAW-FRESH OR NFS	15	P 0.050000	0.010000		100.00	0.010000
13026AA	TURNIPS-TOPS	21 COOKED-NFS	15	P 0.050000	0.010000		100.00	0.010000
13026AA	TURNIPS-TOPS	31 COOKED-FRESH OR CANNED	15	P 0.050000	0.010000		100.00	0.010000
13045AA	LETTUCE-HEAD	10 RAW-FRESH OR NFS	15	P 0.050000	0.050000		100.00	0.050000
13045AA	LETTUCE-HEAD	21 COOKED-NFS	15	P 0.050000	0.050000		100.00	0.050000
14001AA	BEETS-ROOTS	10 RAW-FRESH OR NFS	15	P 0.050000	0.010000		100.00	0.010000
14001AA	BEETS-ROOTS	21 COOKED-NFS	15	P 0.050000	0.010000		100.00	0.010000
14001AA	BEETS-ROOTS	26 COOKED-FRESH-PICKLED, CORNED, OR CURED	15	P 0.050000	0.010000		100.00	0.010000
14001AA	BEETS-ROOTS	31 COOKED-FRESH OR CANNED	15	P 0.050000	0.010000		100.00	0.010000
14003AA	CARROTS	21 COOKED-FRESH OR NFS	15	P 0.050000	0.010000		100.00	0.010000
14003AA	CARROTS	21 COOKED-NFS	15	P 0.050000	0.010000		100.00	0.010000
14003AA	CARROTS	23 COOKED-FRESH-BOILED	15	P 0.050000	0.010000		100.00	0.010000
14003AA	CARROTS	31 COOKED-FRESH OR CANNED	15	P 0.050000	0.010000		100.00	0.010000
14003AA	CARROTS	51 COOKED-CANNED	15	P 0.050000	0.010000		100.00	0.010000
14011AA	ONIONS-DRY-BULB	10 RAW-FRESH OR NFS	15	P 0.050000	0.010000		100.00	0.010000
14011AA	ONIONS-DRY-BULB	21 COOKED-NFS	15	P 0.050000	0.010000		100.00	0.010000
14011AA	ONIONS-DRY-BULB	22 COOKED-FRESH-BAKED	15	P 0.050000	0.010000		100.00	0.010000
14011AA	ONIONS-DRY-BULB	31 COOKED-FRESH OR CANNED	15	P 0.050000	0.010000		100.00	0.010000
14011DA	ONIONS-DRIED	12 RAW-FRESH OR NFS	15	P 0.050000	0.010000		100.00	0.010000
14013AA	POTATO(WH)-WHOLE	10 RAW-FRESH OR NFS	15	P 0.050000	0.010000		5.00	0.000500
14013AA	POTATO(WH)-WHOLE	21 COOKED-NFS	15	P 0.050000	0.010000		5.00	0.000500
14013AA	POTATO(WH)-WHOLE	22 COOKED-FRESH-BAKED	15	P 0.050000	0.010000		5.00	0.000500
14013AB	POTATO(WH)-PULP	22 COOKED-FRESH-BAKED	15	P 0.050000	0.010000		5.00	0.000500
14013AC	POTATO(WH)-PULP	21 COOKED-NFS	15	P 0.050000	0.010000		5.00	0.000500
14013AC	POTATO(WH)-PULP	22 COOKED-FRESH-BAKED	15	P 0.050000	0.010000		5.00	0.000500
14013AC	POTATO(WH)-PULP	23 COOKED-FRESH-BOILED	15	P 0.050000	0.010000		5.00	0.000500
14013AC	POTATO(WH)-PULP	25 COOKED-FRESH-FRIED	15	P 0.050000	0.010000		5.00	0.000500
14013DA	POTATO(WH)-DRY	10 RAW-FRESH OR NFS	15	P 0.050000	0.010000		5.00	0.000500
14013DA	POTATO(WH)-DRY	31 COOKED-FRESH OR CANNED	15	P 0.050000	0.010000		5.00	0.000500
14013HA	POTATO(WH)-PEEL	22 COOKED-FRESH-BAKED	15	P 0.050000	0.010000		5.00	0.000500
14014AA	RADISHES-ROOTS	10 RAW-FRESH OR NFS	REREG	N 0.050000	0.010000		100.00	0.010000
14014AB	RADISHES-TOPS	00 NOT SPECIFIED (NO CONSUMPTION)	REREG	N 0.050000	0.010000		100.00	0.010000
14015AA	RUTABAGAS-ROOTS	10 RAW-FRESH OR NFS	15	P 0.050000	0.010000		100.00	0.010000
14015AA	RUTABAGAS-ROOTS	21 COOKED-NFS	15	P 0.050000	0.010000		100.00	0.010000
14019AA	TURNIPS-ROOTS	10 RAW-FRESH OR NFS	15	P 0.050000	0.050000		100.00	0.050000

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Captan CAS No. 133-06-2 A.I. CODE: 081301 CFR No. 180.103 185.500	3gen reprod- rat NOEL= 12.5000 mg/kg 250.00 ppm LEL= 25.0000 mg/kg 500.00 ppm ONCO: B2 (HED NOTE)	Decreased pup body wts. ADI based on results of 1-gen. and 3-gen. repro- duction studies. Evi- dence of oncogenicity in rats and mice.	ADI UF -->100 OPP Rfd= 0.130000 EPA Rfd= 0.130000 q*: 0.00360	No data gaps. q* calculated.	EPA verified 03/26/86 HED complete 12/22/88 EPA verified 01/18/89 WHO reviewed 1990 Rfd/PR reviewed 09/23/93 On IRIS.

FOOD CODE	FOOD	FOOD FORM	PET.#	TOLERANCE (ppm)	ANTICIPATED RESIDUE (ppm)	AR STATISTIC TYPE	% CROP TREATED	RES. VALUE USED IN TAS RUN (ppm)
15029AA	SOYBEAN-SPROUTED	00 NOT SPECIFIED (NO CONSUMPTION)	15	P 0.050000	0.010000		5.00	0.000500
15030AA	BEANS-DRY-HYAC	00 NOT SPECIFIED (NO CONSUMPTION)	15	P 0.050000	0.010000		90.00	0.009000
15030AB	BEANS-SUCC-HYAC	00 NOT SPECIFIED (NO CONSUMPTION)	15	P 0.050000	0.010000		90.00	0.009000
15031AA	BLKEYE PEAS-DRY	21 COOKED-NFS	15	P 0.050000	0.010000		90.00	0.009000
15032AA	BEANS-DRY	21 COOKED-NFS	15	P 0.050000	0.010000		90.00	0.009000
15032AA	BEANS-DRY	31 COOKED-FRESH OR CANNED	15	P 0.050000	0.010000		90.00	0.009000
16004AA	ONTONS-GREEN	10 RAW-FRESH OR NFS	15	P 0.050000	0.010000		5.00	0.000500
16004AA	ONTONS-GREEN	21 COOKED-NFS	15	P 0.050000	0.010000		5.00	0.000500
16004AA	ONTONS-GREEN	25 COOKED-FRESH-FRIED	15	P 0.050000	0.010000		5.00	0.000500
24001AA	BARLEY	21 COOKED-NFS	REREG	M 0.050000	0.010000		5.00	0.000500
24002EA	CORN, GRAIN-ENDO	10 RAW-FRESH OR NFS	REREG	M 0.050000	0.010000		100.00	0.010000
24002EA	CORN, GRAIN-ENDO	21 COOKED-NFS	REREG	M 0.050000	0.010000		100.00	0.010000
24002EA	CORN, GRAIN-ENDO	23 COOKED-FRESH-BAKED	REREG	M 0.050000	0.010000		100.00	0.010000
24002EA	CORN, GRAIN-ENDO	23 COOKED-FRESH-BOILED	REREG	M 0.050000	0.010000		100.00	0.010000
24002EA	CORN, GRAIN-ENDO	00 NOT SPECIFIED (NO CONSUMPTION)	REREG	M 0.050000	0.010000		100.00	0.010000
24002SA	CORN SUGAR	10 RAW-FRESH OR NFS	REREG	M 0.050000	0.010000		100.00	0.010000
24002SA	CORN SUGAR	21 COOKED-NFS	REREG	M 0.050000	0.010000		100.00	0.010000
24002SA	CORN SUGAR	22 COOKED-FRESH-BAKED	REREG	M 0.050000	0.010000		100.00	0.010000
24003AA	OATS	21 COOKED-NFS	REREG	M 0.050000	0.010000		5.00	0.000500
24003AA	OATS	22 COOKED-FRESH-BAKED	REREG	M 0.050000	0.010000		5.00	0.000500
24003AA	OATS	23 COOKED-FRESH-BOILED	REREG	M 0.050000	0.010000		5.00	0.000500
24005AA	RYE-ROUGH	00 NOT SPECIFIED (NO CONSUMPTION)	REREG	M 0.050000	0.010000		5.00	0.000500
24005GA	RYE-GERM	22 COOKED-FRESH-BAKED	REREG	M 0.050000	0.010000		5.00	0.000500
24005HA	RYE-FLOUR	21 COOKED-NFS	REREG	M 0.050000	0.010000		5.00	0.000500
24005HA	RYE-FLOUR	22 COOKED-FRESH-BAKED	REREG	M 0.050000	0.010000		5.00	0.000500
24006AA	SORGHUM	00 NOT SPECIFIED (NO CONSUMPTION)	REREG	M 0.050000	0.010000		100.00	0.010000
24007AA	WHEAT-ROUGH	10 RAW-FRESH OR NFS	REREG	M 0.050000	0.010000		5.00	0.000500
24007AA	WHEAT-ROUGH	21 COOKED-NFS	REREG	M 0.050000	0.010000		5.00	0.000500
24007AA	WHEAT-ROUGH	22 COOKED-FRESH-BAKED	REREG	M 0.050000	0.010000		5.00	0.000500
24007AA	WHEAT-ROUGH	23 COOKED-FRESH-BOILED	REREG	M 0.050000	0.010000		5.00	0.000500
24007GA	WHEAT-GERM	10 RAW-FRESH OR NFS	REREG	M 0.050000	0.010000		5.00	0.000500
24007GA	WHEAT-GERM	22 COOKED-FRESH-BAKED	REREG	M 0.050000	0.010000		5.00	0.000500
24007HA	WHEAT-BRAN	10 RAW-FRESH OR NFS	REREG	M 0.050000	0.010000		5.00	0.000500
24007HA	WHEAT-BRAN	21 COOKED-NFS	REREG	M 0.050000	0.010000		5.00	0.000500
24007HA	WHEAT-BRAN	22 COOKED-FRESH-BAKED	REREG	M 0.050000	0.010000		5.00	0.000500
24007HA	WHEAT-BRAN	10 RAW-FRESH OR NFS	REREG	M 0.050000	0.010000		5.00	0.000500
24007HA	WHEAT-FLOUR	21 COOKED-NFS	REREG	M 0.050000	0.010000		5.00	0.000500
24007HA	WHEAT-FLOUR	22 COOKED-FRESH-BAKED	REREG	M 0.050000	0.010000		5.00	0.000500
24007HA	WHEAT-FLOUR	25 COOKED-FRESH-FRIED	REREG	M 0.050000	0.010000		5.00	0.000500
25002SA	BET SUGAR	10 RAW-FRESH OR NFS	REREG	M 0.050000	0.010000		100.00	0.010000

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ANTICIPATED RESIDUE INFORMATION FOR CASWELL NUMBER 159

DATE: 11/02/94

PAGE: 8

CHEMICAL	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Captan	3gen reprood- rat	Decreased pup body wts.	ADI UF -->100	No data gaps.	EPA verified 03/26/86
Caswell #159	MOEL= 12.5000 mg/kg	ADI based on results of	OPP Rfd= 0.130000		HED complete 12/22/88
CAS No. 133-06-2	250.00 ppm	1-gen. and 3-gen. repro-	EPA Rfd= 0.130000		EPA verified 01/18/89
A.I. CODE: 081301	LEL= 25.0000 mg/kg	duction studies. Evi-			WHO reviewed 1990
CFR No. 180.103	500.00 ppm	dence of oncogenicity in			Rfd/PR reviewed 09/23/93
185.500	ONCO: B2 (HED NOTE)	rats and mice.	q*: 0.00360	q* calculated.	On IRIS.

FOOD CODE	FOOD	PET.#	TOLERANCE (ppm)	ANTICIPATED RESIDUE (ppm)	AR STATISTIC TYPE	% CROP TREATED	RES. VALUE USED IN TAS RUN (ppm)
53001BA	BEEF-MEAT BYP	3E13671	P 0.400000	0.020000		100.00	0.020000
53001BA	BEEF-MEAT BYP	3E13671	P 0.400000	0.020000		100.00	0.020000
53001BB	BEEF-OTH ORGAN	3E13671	P 0.400000	0.020000		100.00	0.020000
53001BB	BEEF-OTH ORGAN	3E13671	P 0.400000	0.020000		100.00	0.020000
53001DA	BEEF-DRIED	3E13671	P 0.300000	0.020000		100.00	0.020000
53001FA	BEEF-FAT	3E13671	P 0.250000	0.010000		100.00	0.010000
53001FA	BEEF-FAT	3E13671	P 0.250000	0.010000		100.00	0.010000
53001FA	BEEF-FAT	3E13671	P 0.250000	0.010000		100.00	0.010000
53001FA	BEEF-FAT	3E13671	P 0.250000	0.010000		100.00	0.010000
53001FA	BEEF-FAT	3E13671	P 0.250000	0.010000		100.00	0.010000
53001KA	BEEF-KIDNEY	3E13671	P 0.400000	0.020000		100.00	0.020000
53001LA	BEEF-LIVER	3E13671	P 0.400000	0.020000		100.00	0.020000
53001LA	BEEF-LIVER	3E13671	P 0.400000	0.020000		100.00	0.020000
53001MA	BEEF-LEAN	3E13671	P 0.300000	0.020000		100.00	0.020000
53001MA	BEEF-LEAN	3E13671	P 0.300000	0.020000		100.00	0.020000
53001MA	BEEF-LEAN	3E13671	P 0.300000	0.020000		100.00	0.020000
53001MA	BEEF-LEAN	3E13671	P 0.300000	0.020000		100.00	0.020000
53001MA	BEEF-LEAN	3E13671	P 0.300000	0.020000		100.00	0.020000
53002BA	GOAT-MEAT BYP	REREG	N 0.400000	0.020000		100.00	0.020000
53002BB	GOAT-OTH ORGAN	REREG	N 0.400000	0.020000		100.00	0.020000
53002FA	GOAT-FAT	REREG	N 0.250000	0.010000		100.00	0.010000
53002FA	GOAT-FAT	REREG	N 0.250000	0.010000		100.00	0.010000
53002KA	GOAT-KIDNEY	REREG	N 0.400000	0.020000		100.00	0.020000
53002LA	GOAT-LIVER	REREG	N 0.400000	0.020000		100.00	0.020000
53002MA	GOAT-LEAN	REREG	N 0.400000	0.020000		100.00	0.020000
53002MA	GOAT-LEAN	REREG	N 0.300000	0.020000		100.00	0.020000
53003AA	HORSE	REREG	N 0.400000	0.020000		100.00	0.020000
53005BA	SHEEP-MEAT BYP	REREG	N 0.400000	0.020000		100.00	0.020000
53005BB	SHEEP-OTH ORGAN	REREG	N 0.400000	0.020000		100.00	0.020000
53005FA	SHEEP-FAT	REREG	N 0.400000	0.020000		100.00	0.020000
53005KA	SHEEP-KIDNEY	REREG	N 0.400000	0.020000		100.00	0.020000
53005LA	SHEEP-LIVER	REREG	N 0.400000	0.020000		100.00	0.020000
53005MA	SHEEP-LEAN	REREG	N 0.300000	0.020000		100.00	0.020000
53006BA	PORK-MEAT BYP	3E13671	P 0.400000	0.020000		100.00	0.020000
53006BB	PORK-OTH ORGAN	3E13671	P 0.400000	0.020000		100.00	0.020000
53006BB	PORK-OTH ORGAN	3E13671	P 0.400000	0.020000		100.00	0.020000
53006FA	PORK-FAT	3E13671	P 0.250000	0.010000		100.00	0.010000
53006FA	PORK-FAT	3E13671	P 0.250000	0.010000		100.00	0.010000

Table 2.

TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

DATE: 11/02/94

PAGE: 8

CHEMICAL INFORMATION	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS		
Captain Caswell #159 CAS No. 133-06-2 A.I. CODE: 081301 CFR No. 180.103 185.500	3gen reprod- rat NOEL= 12,5000 mg/kg 250.00 ppm LEL= 25.0000 mg/kg 500.00 ppm	Decreased pup body wts. ADI based on results of 1-gen. and 3-gen. repro- duction studies. Evi- dence of oncogenicity in rats and mice.	ADI UF --> 100 OPP RfD= 0.130000 EPA RfD= 0.130000 q*: 0.00360	No data gaps.	EPA verified 03/26/86 MED complete 12/22/88 EPA verified 01/18/89 WHO reviewed 1990 RfD/PR reviewed 09/23 On IRIS.		
POPULATION SUBGROUP	TOTAL THRC (MG/KG BODY WEIGHT/DAY)	CURRENT THRC*	NEW THRC**	NEW THRC AS PERCENT OF RfD	DIFFERENCE AS PERCENT OF RfD	EFFECT OF ANTICIPATED RESIDUES AWC	%RfD
U.S. POPULATION - 48 STATES	0.034141	0.035844	27.572068	1.309548	0.001012	0.77863	
U.S. POPULATION - SPRING SEASON	0.031069	0.032654	25.118310	1.218887	0.000972	0.74782	
U.S. POPULATION - SUMMER SEASON	0.033352	0.035025	26.942552	1.287318	0.001022	0.76639	
U.S. POPULATION - FALL SEASON	0.036315	0.038093	29.302525	1.367733	0.001025	0.78823	
U.S. POPULATION - WINTER SEASON	0.035603	0.037372	28.747795	1.360919	0.001001	0.76985	
NORTHEAST REGION	0.041341	0.043113	33.163468	1.362429	0.001169	0.89951	
NORTH CENTRAL REGION	0.032377	0.034147	26.267128	1.361961	0.001008	0.77520	
SOUTHERN REGION	0.025241	0.026716	20.551119	1.135192	0.000726	0.55823	
WESTERN REGION	0.042137	0.044034	33.872084	1.459105	0.001264	0.97218	
HISPANICS	0.035550	0.037690	28.992005	1.645937	0.000946	0.72761	
NON-HISPANIC WHITES	0.035694	0.037385	28.757794	1.308872	0.001062	0.81655	
NON-HISPANIC BLACKS	0.022808	0.024281	18.678072	1.133150	0.000678	0.52185	
NON-HISPANIC OTHERS	0.036236	0.038105	29.311884	1.438151	0.000910	0.69975	
NURSING INFANTS (< 1 YEAR OLD)	0.209609	0.211780	162.907405	1.669358	0.002632	2.02439	
NON-NURSING INFANTS (< 1 YEAR OLD)	0.293998	0.303975	233.827279	7.675068	0.004537	3.46982	
FEMALES (13+ YEARS, PREGNANT)	0.021888	0.023093	17.763542	0.926947	0.000750	0.57656	
FEMALES 13+ YEARS, NURSING	0.031350	0.032930	25.330448	1.215157	0.001093	0.84111	
CHILDREN (1-6 YEARS OLD)	0.100483	0.105400	81.076618	3.782057	0.002577	1.98237	
CHILDREN (7-12 YEARS OLD)	0.046047	0.049076	37.750416	2.329608	0.001397	1.07494	
MALES (13-19 YEARS OLD)	0.021449	0.023328	17.944261	1.445406	0.000675	0.51907	
FEMALES (13-19 YEARS OLD, NOT PREG. OR NURSING)	0.021265	0.022694	17.456769	1.099239	0.000657	0.50509	
MALES (20 YEARS AND OLDER)	0.018503	0.019435	14.949716	0.716854	0.000653	0.52540	
FEMALES (20 YEARS AND OLDER, NOT PREG. OR MURS)	0.020681	0.021507	16.543464	0.635008	0.000734	0.56493	

*Current THRC does not include new or pending tolerances.
**New THRC includes new, pending, and published tolerances.

Table 4: Captan RED using Cancer ARS

TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

DATE: 11/02/94

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CHEMICAL INFORMATION		STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Captan Caswell #159 CAS No. 133-06-2 A.I. CODE: 081301 CFR No. 180.103 185.500		3gen reprod- rat NOEL= 12.5000 mg/kg 250.00 ppm LEL= 25.0000 mg/kg 500.00 ppm ONCO: B2 (HED NOTE)	Decreased pup body wts. ADI based on results of 1-gen. and 3-gen. repro- duction studies. Evi- dence of oncogenicity in rats and mice.	ADI UF -->100 OPP Rfd= 0.130000 EPA Rfd= 0.130000 q*: 0.00360	No data gaps. q* calculated.	EPA verified 03/26/86 HED complete 12/22/88 EPA verified 01/18/89 WHO reviewed 1990 Rfd/PR reviewed 09/23/93 On IRIS.

COMMODITY CONTRIBUTION BY RAC FOR: U.S. POPULATION - 48 STATES

FOOD CODE	FOODNAME/FOODFORM	TOLERANCE (PPH)	TMRG TYPE (UG/KG/DAY)	TMRG	%RFD	TMRG ONCO RISK	ANTICIPATED RESIDUE (PPM)	ARC (UG/KG/DAY)	ARC	%RFD	ONCO RISK
15015AA	OKRA	0.050	N	0.000732	0.001	0.00000000264	0.01000	0.000136	0.000	0.000	0.00000000049
	21 COOKED-NFS						0.01000	0.000010	0.000	0.000	0.00000000004
15018AA	SUNFLOWER-FRIED	0.050	N	0.000087	0.000	0.00000000031	0.00050	0.000001	0.000	0.000	0.00000000000
	25 COOKED-FRESH-FRIED						0.01000	0.000001	0.000	0.000	0.00000000000
15021AA	10 RAW-FRESH OR NFS	0.050	N	0.000007	0.000	0.00000000003	0.01000	0.000001	0.000	0.000	0.00000000000
	10 RAW-FRESH OR NFS						0.01000	0.000001	0.000	0.000	0.00000000000
15026AA	ALFALFA SPROUTS	0.050	N	0.000022	0.000	0.00000000008	0.01000	0.000002	0.000	0.000	0.00000000001
	22 COOKED-FRESH-BAKED						0.05000	0.000000	0.000	0.000	0.00000000000
26011AA	GUJAR BEANS	0.050	P	0.000000	0.000	0.00000000000	0.01000	0.000003	0.000	0.000	0.00000000001
	00 NOT SPECIFIED (NO CONSUMPTION)						0.05000	0.000000	0.000	0.000	0.00000000000
270030A	COTTONSEED-OIL	0.050	P	0.001020	0.001	0.00000000367	0.00500	0.000102	0.000	0.000	0.00000000037
	18 PROCESSED OIL						0.00500	0.000001	0.000	0.000	0.00000000000
27003WA	COTTONSEED-NEAL	0.050	P	0.000006	0.000	0.00000000002	0.01000	0.000000	0.000	0.000	0.00000000000
	00 NOT SPECIFIED (NO CONSUMPTION)						0.01000	0.000000	0.000	0.000	0.00000000000
27004AA	FLAX SEED	0.050	N	0.000000	0.000	0.00000000000	0.01000	0.000000	0.000	0.000	0.00000000000
	18 PROCESSED OIL						0.01000	0.000000	0.000	0.000	0.00000000000
27008AA	SAFFLOWER-SEED	0.050	N	0.000000	0.000	0.00000000000	0.01000	0.000000	0.000	0.000	0.00000000000
	00 NOT SPECIFIED (NO CONSUMPTION)						0.01000	0.000000	0.000	0.000	0.00000000000
270080A	SAFFLOWER-OIL	0.050	N	0.000078	0.000	0.00000000028	0.01000	0.000016	0.000	0.000	0.00000000006
	18 PROCESSED OIL						0.01000	0.000000	0.000	0.000	0.00000000000
270090A	SESAME-OIL	0.050	N	0.000001	0.000	0.00000000000	0.01000	0.000000	0.000	0.000	0.00000000000
	18 PROCESSED OIL						0.01000	0.000000	0.000	0.000	0.00000000000
270110A	SUNFLOWER-OIL	0.050	P	0.000124	0.000	0.00000000045	0.01000	0.000025	0.000	0.000	0.00000000009
	18 PROCESSED OIL						0.00050	0.000000	0.000	0.000	0.00000000000
27017AA	RAPE SEED	0.050	N	0.000000	0.000	0.00000000000	1.50000	0.124797	0.096	0.000	0.0000004927
	00 NOT SPECIFIED (NO CONSUMPTION)						1.50000	0.001497	0.001	0.000	0.00000000539
43058AA	WINE AND SHERRY	10.000	P	0.841956	0.648	0.00000303104					
	10 RAW-FRESH OR NFS										
	21 COOKED-NFS										
CROP GROUP TOTALS FOR UNSPECIFIED:											
				0.844033	0.649	0.00000303852		0.126591		0.097	0.00000045573

14001AA	BEETS-ROOTS	0.050	P	0.001081	0.001	0.00000000389	0.01000	0.000000	0.000	0.000	0.00000000000
	10 RAW-FRESH OR NFS						0.01000	0.000158	0.000	0.000	0.00000000057
	21 COOKED-NFS						0.01000	0.000032	0.000	0.000	0.00000000012
	26 COOKED-FRESH-PICKLED, CORNED, OR CURED						0.01000	0.000025	0.000	0.000	0.00000000009
	31 COOKED-FRESH OR CANNED						0.01000	0.000000	0.000	0.000	0.00000000000
14003AA	CARROTS	0.050	P	0.008674	0.007	0.00000003123	0.01000	0.000401	0.000	0.000	0.00000000144
	10 RAW-FRESH OR NFS										

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Captan RED using cancer ARS

TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

DATE: 11/02/94

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CHEMICAL INFORMATION		STUDY TYPE		EFFECTS		REFERENCE DOSES		DATA GAPS/COMMENTS		STATUS	
Caswell #159 CAS No. 133-06-2 A.I. CODE: 081301 CFR No. 180.103 185.500		3gen reprod- rat NOEL= 12.5000 mg/kg 250.00 ppm LEL= 25.0000 mg/kg 500.00 ppm ONCO: B2 (RED NOTE)		Decreased pup body wts. ADI based on results of 1-gen. and 3-gen. repro- duction studies. Evi- dence of oncogenicity in rats and mice.		ADI UF -->100 OPP Rfd= 0.130000 EPA Rfd= 0.130000 q*: 0.00360		No data gaps.		EPA verified 03/26/86 HED. complete 12/22/88 EPA verified 01/18/89 WHO reviewed 1990 Rfd/PR reviewed 09/23/93 On IRIS.	

COMMODITY CONTRIBUTION BY RAC FOR U.S. POPULATION - 48 STATES

FOOD CODE	FOODNAME/FOODFORM	TOLERANCE (PPM)	TYPE	TMRC (UG/KG/DAY)	%RFD	TMRC ONCO RISK	ANTICIPATED RESIDUE (PPM)	ARC (UG/KG/DAY)	%RFD	ARC ONCO RISK
13001AA	BETS-TOPS(GREENS)	0.050	P	0.000041	0.000	0.0000000000015	0.01000	0.000007	0.000	0.000000000003
	31 COOKED-FRESH OR CANNED						0.01000	0.000002	0.000	0.000000000001
13026AA	TURNIPS-TOPS	0.050	P	0.000736	0.001	0.0000000000265	0.01000	0.000044	0.000	0.000000000016
	10 RAW-FRESH OR NFS						0.01000	0.000035	0.000	0.000000000013
	21 COOKED-NFS						0.01000	0.000068	0.000	0.000000000024
14014AB	RADISHES-TOPS	0.050	N	0.000000	0.000	0.0000000000000	0.01000	0.000000	0.000	0.000000000000
	00 NOT SPECIFIED (NO CONSUMPTION)						0.01000	0.000000	0.000	0.000000000000
CROP GROUP TOTALS FOR LEAVES OF ROOT AND TUBER VEG.:										
				0.000777	0.001	0.0000000000280	0.00156	0.000156	0.000	0.000000000056

14011AA	ONIONS-DRY-BULB (CIPOLLINI)	0.050	P	0.005303	0.004	0.000000001909	0.01000	0.000185	0.000	0.000000000067
	10 RAW-FRESH OR NFS						0.01000	0.000708	0.001	0.00000000255
	21 COOKED-NFS						0.01000	0.000103	0.000	0.000000000037
14011DA	ONIONS-DEHYDRATED OR DRIED	0.050	P	0.000054	0.000	0.0000000000019	0.01000	0.000064	0.000	0.000000000023
	12 RAW-FRESH-DRIED						0.01000	0.000011	0.000	0.000000000004
16004AA	ONIONS-GREEN	0.050	P	0.000098	0.000	0.0000000000035	0.00050	0.000001	0.000	0.000000000000
	10 RAW-FRESH OR NFS						0.00050	0.000000	0.000	0.000000000000
	21 COOKED-NFS						0.00050	0.000000	0.000	0.000000000000
	25 COOKED-FRESH-FRIED						0.00050	0.000000	0.000	0.000000000000
CROP GROUP TOTALS FOR BULB VEGETABLES:										
				0.005455	0.004	0.000000001964	0.00172	0.001072	0.001	0.000000000386

13013AA	LETTUCE-LEAFY VARIETIES	0.050	P	0.000222	0.000	0.0000000000080	0.00050	0.000002	0.000	0.000000000001
	10 RAW-FRESH OR NFS						0.00050	0.000002	0.000	0.000000000001
13020AA	LETTUCE-UNSPECIFIED	0.050	P	0.000460	0.000	0.0000000000166	0.00050	0.000005	0.000	0.000000000002
	10 RAW-FRESH OR NFS						0.00050	0.000004	0.000	0.000000000001
13024AA	SPINACH	0.050	P	0.002177	0.002	0.0000000000784	0.00050	0.000003	0.000	0.000000000001
	10 RAW-FRESH OR NFS						0.00050	0.000015	0.000	0.000000000005
	21 COOKED-NFS						0.00050	0.000001	0.000	0.000000000000
13025AA	SWISS CHARD	0.050	N	0.000085	0.000	0.0000000000031	0.01000	0.000001	0.000	0.000000000000
	10 RAW-FRESH OR NFS						0.01000	0.000015	0.000	0.000000000005
	31 COOKED-FRESH OR CANNED						0.01000	0.000001	0.000	0.000000000000
13045AA	LETTUCE-HEAD VARIETIES	0.050	P	0.010614	0.008	0.0000000003821	0.05000	0.010413	0.008	0.000000003749
	10 RAW-FRESH OR NFS						0.05000	0.000201	0.000	0.000000000072
	21 COOKED-NFS									

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Captan RED using cancer ARS

TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

DATE: 11/02/94

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CHEMICAL INFORMATION		STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Captan Caswell #159 CAS No. 133-06-2 A.I. CODE: 081301 CFR No. 180.103 185.500		3gen reprod- rat NOEL= 12.5000 mg/kg 250.00 ppm LEL= 25.0000 mg/kg 500.00 ppm ONCO: B2 (HED NOTE)	Decreased pup body wts. ADI based on results of 1-gen. and 3-gen. repro- duction studies. Evi- dence of oncogenicity in rats and mice.	ADI UF -->100 OPP RfD= 0.130000 EPA RfD= 0.130000 qt: 0.00360	No data gaps. q* calculated.	EPA verified 03/26/86 HED complete 12/22/88 EPA verified 01/18/89 WHO reviewed 1990 RFD/PR reviewed 09/23/93 On IRIS.

COMMODITY CONTRIBUTION BY RAC FOR: U.S. POPULATION - 48 STATES

FOOD CODE	FOODNAME/FOODFORM	TOLERANCE (PPM)	EFFECTS TYPE	TMRC (UG/KG/DAY)	TMRC	XRFD	TMRC ONCO RISK	ANTICIPATED RESIDUE (PPM)	ARC (UG/KG/DAY)	XRFD	ARC ONCO RISK
15001AE	BEANS-DRY-OTHER 21 COOKED-NFS	0.050	P	0.001991	0.002	0.00000000717	0.00900	0.000157	0.000	0.00000000057	
	25 COOKED-FRESH-FRIED						0.00900	0.000058	0.000	0.00000000021	
	31 COOKED-FRESH OR CANNED						0.00900	0.000144	0.000	0.00000000052	
15001AF	BEANS-DRY-PINTO 21 COOKED-NFS	0.050	P	0.001817	0.001	0.00000000654	0.00900	0.000327	0.000	0.00000000118	
15002AA	BEANS-SUCCULENT-LIMA 10 RAW-FRESH OR NFS	0.050	P	0.001283	0.001	0.00000000462	0.00900	0.000000	0.000	0.00000000000	
	21 COOKED-NFS						0.00900	0.000231	0.000	0.00000000083	
15003AA	BEANS-SUCCULENT-GREEN 21 COOKED-NFS	0.050	P	0.010003	0.008	0.000000003601	0.00900	0.001800	0.001	0.00000000648	
15003AB	BEANS-SUCCULENT-OTHER 10 RAW-FRESH OR NFS	0.050	P	0.001319	0.001	0.00000000475	0.00900	0.000000	0.000	0.00000000000	
	21 COOKED-NFS						0.00900	0.000237	0.000	0.00000000085	
15003AC	BEANS-SUCCULENT-YELLOW, MAX 21 COOKED-NFS	0.050	P	0.000273	0.000	0.00000000098	0.00900	0.000049	0.000	0.00000000018	
15006AA	PEANUTS-WHOLE 10 RAW-FRESH OR NFS	0.050	N	0.003479	0.003	0.00000001252	0.00700	0.000007	0.000	0.00000000003	
	21 COOKED-NFS						0.00700	0.000450	0.000	0.00000000162	
	22 COOKED-FRESH-BAKED						0.00700	0.000029	0.000	0.00000000010	
15007AA	PEAS(GARDEN)-MATURE SEEDS, DRY 21 COOKED-NFS	0.050	P	0.000088	0.000	0.00000000032	0.01000	0.000008	0.000	0.00000000003	
15009AA	PEAS(GARDEN)-GREEN IMMATURE 31 COOKED-FRESH OR CANNED	0.050	P	0.008600	0.007	0.000000003096	0.01000	0.000010	0.000	0.00000000004	
	21 COOKED-NFS						0.01000	0.001544	0.001	0.00000000556	
15013AA	MUNG BEANS (SPROUTS) 10 RAW-FRESH OR NFS	0.050	P	0.000333	0.000	0.000000000120	0.01000	0.000176	0.000	0.00000000063	
	21 COOKED-NFS						0.05000	0.000038	0.000	0.00000000014	
15022AA	BEANS-DRY-BROADBEANS(MATURE SEED) 00 NOT SPECIFIED (NO CONSUMPTION)	0.050	P	0.000000	0.000	0.000000000000	0.05000	0.000295	0.000	0.00000000106	
15022AB	BEANS-SUCCULENT-BROADBEANS(IMMAT. SEED) 00 NOT SPECIFIED (NO CONSUMPTION)	0.050	P	0.000000	0.000	0.000000000000	0.00900	0.000000	0.000	0.00000000000	
15023AA	BEANS-DRY-PIGEON BEANS 21 COOKED-NFS	0.050	P	0.000002	0.000	0.000000000001	0.00900	0.000000	0.000	0.00000000000	
15027AA	BEANS-UNSPECIFIED 21 COOKED-NFS	0.050	P	0.000262	0.000	0.000000000094	0.00900	0.000000	0.000	0.00000000000	
15029AA	SOYBEANS-SPROUTED SEEDS 00 NOT SPECIFIED (NO CONSUMPTION)	0.050	P	0.000000	0.000	0.000000000000	0.00900	0.000047	0.000	0.00000000017	
15030AA	BEANS-DRY-HYACINTH(MATURE SEEDS) 00 NOT SPECIFIED (NO CONSUMPTION)	0.050	P	0.000000	0.000	0.000000000000	0.00050	0.000000	0.000	0.00000000000	
							0.00900	0.000000	0.000	0.00000000000	

Captan RED using cancer ARS

TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

DATE: 11/02/94

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CHEMICAL INFORMATION		STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Captan	3gen reprod- rat MOEL= 12.5000 mg/kg 250.00 ppm LEL= 25.0000 mg/kg 500.00 ppm ONCO: B2 (HED NOTE)	3gen reprod- rat MOEL= 12.5000 mg/kg 250.00 ppm LEL= 25.0000 mg/kg 500.00 ppm ONCO: B2 (HED NOTE)	Decreased pup body wts. ADI based on results of 1-gen. and 3-gen. repro- duction studies. Evi- dence of oncogenicity in rats and mice.	ADI UF -->100 OPP Rfd= 0.130000 EPA Rfd= 0.130000	No data gaps.	EPA verified 03/26/86 HED complete 12/22/88 EPA verified 01/18/89 WHO reviewed 1990 Rfd/PR reviewed 09/23/93 On IRIS.

COMMODITY CONTRIBUTION BY RAC FOR: U.S. POPULATION - 48 STATES

FOOD CODE	FOODNAME/FOODFORM	TOLERANCE (PPM)	THRC TYPE	THRC (UG/KG/DAY)	ZRFD	THRC ONCO RISK	ANTICIPATED RESIDUE (PPM)	ARC (UG/KG/DAY)	ZRFD	ARC ONCO RISK
11003AB	CHILI PEPPERS	0.050	P	0.000205	0.000	0.000000000074	0.00050	0.000002	0.000	0.000000000001
11003AD	PEPPERS-OTHER	0.050	P	0.000218	0.000	0.000000000078	0.00050	0.000000	0.000	0.000000000000
	10 RAW-FRESH OR NFS						0.00050	0.000000	0.000	0.000000000001
	21 COOKED-NFS						0.00050	0.000000	0.000	0.000000000000
	51 COOKED-CANNED						0.00050	0.000000	0.000	0.000000000000
11004AA	PINIENTOS	0.050	P	0.000097	0.000	0.000000000035	0.00050	0.000000	0.000	0.000000000000
	10 RAW-FRESH OR NFS						0.00050	0.000000	0.000	0.000000000000
	21 COOKED-NFS						0.00050	0.000000	0.000	0.000000000000
	31 COOKED-FRESH OR CANNED						0.00050	0.000000	0.000	0.000000000000
CROP GROUP TOTALS FOR FRUITING VEGETABLES (EXCL. CUCURBITS):										
		0.050	P	0.001907	0.001	0.00000000687	0.00050	0.000017	0.000	0.000000000006
10002AA	CANTALOUPE-UNSPECIFIED	0.050	P	0.000000	0.000	0.000000000000	0.00050	0.000000	0.000	0.000000000000
10002AB	CANTALOUPE-PULP	0.050	P	0.002221	0.002	0.000000000800	0.00050	0.000022	0.000	0.000000000008
	10 RAW-FRESH OR NFS						0.00050	0.000000	0.000	0.000000000000
	21 COOKED-NFS						0.00050	0.000000	0.000	0.000000000000
10005AA	HONEYDEW MELONS	0.050	P	0.000918	0.001	0.00000000330	0.00050	0.000009	0.000	0.000000000003
10008AA	WATERMELON	0.050	P	0.003825	0.003	0.00000001377	0.00050	0.000038	0.000	0.000000000014
	10 RAW-FRESH OR NFS						0.00050	0.000000	0.000	0.000000000000
	21 COOKED-NFS						0.00050	0.000000	0.000	0.000000000000
10010AA	CUCUMBERS	0.050	P	0.003604	0.003	0.00000001297	0.01000	0.000385	0.000	0.00000000139
	10 RAW-FRESH OR NFS						0.01000	0.000313	0.000	0.00000000113
	11 RAW-FRESH-PICKLED, CORNED, OR CURED						0.01000	0.000023	0.000	0.000000000008
	21 COOKED-NFS						0.01000	0.000004	0.000	0.000000000001
10011AA	PUMPKIN	0.050	P	0.000221	0.000	0.000000000080	0.01000	0.000006	0.000	0.000000000002
	21 COOKED-NFS						0.01000	0.000035	0.000	0.000000000013
	22 COOKED-FRESH-BAKED						0.01000	0.000013	0.000	0.000000000005
10013AA	SQUASH-SUMMER	0.050	P	0.001582	0.001	0.00000000570	0.01000	0.000013	0.000	0.000000000005
	62 COOKED-FRESH OR FROZEN-BAKED						0.01000	0.000303	0.000	0.00000000109
	10 RAW-FRESH OR NFS						0.01000	0.000000	0.000	0.000000000000
	21 COOKED-NFS						0.01000	0.000283	0.000	0.00000000102
10014AA	SQUASH-WINTER	0.050	P	0.001622	0.001	0.00000000584	0.01000	0.000041	0.000	0.000000000015
	10 RAW-FRESH OR NFS						0.01000	0.000000	0.000	0.000000000000
	21 COOKED-NFS						0.01000	0.000041	0.000	0.000000000015
	31 COOKED-FRESH OR CANNED						0.01000	0.000041	0.000	0.000000000015
CROP GROUP TOTALS FOR FRUITING VEGETABLES (CUCURBITS):										
		0.050	P	0.013993	0.011	0.00000005037	0.00050	0.001475	0.001	0.00000000531

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Captan RED using cancer ARS

TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

DATE: 11/02/94

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CHEMICAL INFORMATION	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Captan Caswell #159 CAS No. 133-06-2 A.I. CODE: 081301 CFR No. 180.103 185.500	3gen reprod- rat NOEL= 12.5000 mg/kg 250.00 ppm LEL= 25.0000 mg/kg 500.00 ppm ONCO: B2 (HED NOTE)	Decreased pup body wts. ADI based on results of 1-gen. and 3-gen. repro- duction studies. Evi- dence of oncogenicity in rats and mice.	ADI UF -->100 OPP RfD= 0.130000 EPA RfD= 0.130000 q*: 0.00360	No data gaps. q* calculated.	EPA verified 03/26/86 HED complete 12/22/88 EPA verified 01/18/89 WHO reviewed 1990 RfD/PR reviewed 09/23/93 On IRIS.

COMMODITY CONTRIBUTION BY RAC FOR: U.S. POPULATION - 48 STATES

FOOD CODE	FOODNAME/FOODFORM	TOLERANCE (PPM)	THRC TYPE (UG/KG/DAY)	THRC	ZRFD	ONCO RISK	ANTICIPATED RESIDUE (PPM)	ARC (UG/KG/DAY)	ZRFD	ARC	ONCO RISK
05004AA	PEACHES-FRESH 10 RAW-FRESH OR NFS 21 COOKED-NFS 31 COOKED-FRESH OR CANNED 51 COOKED-CANNED	15.000	P	3.230874	2.485	0.00001163115	0.15000	0.015071	0.012	0.00000005426	0.0000000531
05004DA	PEACHES-DRIED 10 RAW-FRESH OR NFS 21 COOKED-NFS	15.000	P	0.005208	0.004	0.00000001875	0.15000	0.011983	0.009	0.00000004314	0.00000001361
05005AA	PLUMS(DAWSONS)-FRESH 10 RAW-FRESH OR NFS 31 COOKED-FRESH OR CANNED	10.080	P	0.248626	0.191	0.000000089505	1.10000	0.000203	0.000	0.00000000073	0.00000000064
05005DA	PLUMS-PRUNES(DRIED) 10 RAW-FRESH OR NFS 21 COOKED-NFS 31 COOKED-FRESH OR CANNED	10.000	P	0.174213	0.134	0.000000062717	0.04400	0.000819	0.001	0.00000000295	0.00000000099
05005JA	PLUMS-PRUNE-JUICE 10 RAW-FRESH OR NFS 62 COOKED-FRESH OR FROZEN-BAKED	10.000	P	0.192567	0.148	0.000000069324	0.01000	0.000018	0.000	0.00000000006	0.00000000047
CROP GROUP TOTALS FOR STONE FRUITS:											
01002AA	BLACKBERRIES 10 RAW-FRESH OR NFS 21 COOKED-NFS 62 COOKED-FRESH OR FROZEN-BAKED	25.000	P	6.401346	4.924	0.00002304485	0.06200	0.001192	0.001	0.00000000429	0.00000000001
01004AA	DELBERRIES 00 NOT SPECIFIED (NO CONSUMPTION)	25.000	P	0.058575	0.045	0.00000021087	0.24000	0.000191	0.000	0.00000000069	0.00000000246
01006AA	RASPBERRIES 10 RAW-FRESH OR NFS 15 RAW-FRESH OR CANNED 31 COOKED-FRESH OR CANNED 62 COOKED-FRESH OR FROZEN-BAKED 70 RAW-FROZEN	25.000	P	0.071652	0.055	0.00000025795	0.24000	0.000683	0.001	0.00000000246	0.000000000240
01009AA	BLUEBERRIES 10 RAW-FRESH OR NFS 21 COOKED-NFS 22 COOKED-FRESH-BAKED 62 COOKED-FRESH OR FROZEN-BAKED	25.000	P	0.226185	0.174	0.000000081427	0.55000	0.001289	0.001	0.000000000464	0.000000000053
01014AA	GRAPES-FRESH 10 RAW-FRESH OR NFS 21 COOKED-NFS	10.000	P	0.437931	0.337	0.00000157655	0.11000	0.000590	0.000	0.00000000212	0.00000000043
CROP GROUP TOTALS FOR STONE FRUITS:											
01014AA	GRAPES-FRESH 10 RAW-FRESH OR NFS 21 COOKED-NFS	10.000	P	0.437931	0.337	0.00000157655	0.24000	0.005822	0.004	0.00000002096	0.00000000069

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Captan RED using cancer ARs

TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

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CHEMICAL INFORMATION	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Captan Caswell #159 CAS No. 133-06-2 A.I. CODE: 081301 CFR No. 180.103 185.500	3gen repro- rat NOEL= 12.5000 mg/kg 250.00 ppm LEL= 25.0000 mg/kg 500.00 ppm OMCO: B2 (HED NOTE)	Decreased pup body wts. AD1 based on results of 1-gen. and 3-gen. repro- duction studies. Evi- dence of oncogenicity in rats and mice.	AD1 UF -->100 OPP Rfd= 0.130000 EPA Rfd= 0.130000 Q* = 0.00360	No data gaps.	EPA verified 03/26/86 HED complete 12/22/88 EPA verified 01/18/89. WHO reviewed 1990 Rfd/PR reviewed 09/23/93 On IRIS.

COMMODITY CONTRIBUTION BY RAC FOR; U.S. POPULATION - 48 STATES

FOOD CODE	FOODNAME/FOODFORM	TOLERANCE (PPM)	EFFECTS TYPE (UG/KG/DAY)	TMR	XRFD	TMR	OMCO RISK	ANTICIPATED		
								RESIDUE (PPM)	ARC (UG/KG/DAY)	XRFD
24005GA	RYE-GERM	0.050	N	0.000014	0.000	0.000000000005	0.00050	0.000000	0.000	0.000000000000
24005HA	22 COOKED-FRESH-BAKED RYE-FLOUR	0.050	N	0.000201	0.000	0.000000000072	0.00050	0.000000	0.000	0.000000000000
24006AA	21 COOKED-NFS 22 COOKED-FRESH-BAKED SORGHUM (INCLUDING MILO)	0.050	N	0.001188	0.001	0.000000000428	0.00050	0.000002	0.000	0.000000000001
24007AA	00 NOT SPECIFIED (NO CONSUMPTION) WHEAT-ROUGH 10 RAW-FRESH OR NFS 21 COOKED-NFS	0.050	N	0.007031	0.005	0.00000002531	0.01000	0.000238	0.000	0.000000000086
24007GA	22 COOKED-FRESH-BAKED WHEAT-GERM	0.050	N	0.000040	0.000	0.00000000014	0.00050	0.000000	0.000	0.000000000000
24007HA	22 COOKED-FRESH-BAKED WHEAT-BRAN 10 RAW-FRESH OR NFS 21 COOKED-NFS	0.050	N	0.000408	0.000	0.00000000219	0.00050	0.000004	0.000	0.000000000001
24007NA	22 COOKED-FRESH-BAKED WHEAT-FLOUR 10 RAW-FRESH OR NFS 21 COOKED-NFS	0.050	N	0.062862	0.048	0.00000022630	0.00050	0.000006	0.000	0.000000000002
270020A	25 COOKED-FRESH-FRIED CORN, GRAIN-OIL 18 PROCESSED OIL	0.050	N	0.001140	0.001	0.000000000410	0.00050	0.000047	0.000	0.000000000017
CROP GROUP TOTALS FOR CEREAL GRAINS:										
				0.107809	0.083	0.00000039811	0.00700	0.004477	0.003	0.00000001612
03001AA	ALMONDS	0.250	P	0.000701	0.001	0.00000000252	0.00700	0.000009	0.000	0.000000000003
	10 RAW-FRESH OR NFS 21 COOKED-NFS 22 COOKED-FRESH-BAKED						0.00700	0.000007	0.000	0.000000000003
CROP GROUP TOTALS FOR TREE NUTS:										
				0.000701	0.001	0.00000000252	0.00700	0.000004	0.000	0.000000000001

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Captan RED using cancer ARS

TOLERANCE ASSESSMENT SYSTEM ROUTINE CHRONIC ANALYSIS

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CHEMICAL INFORMATION	STUDY TYPE	EFFECTS	REFERENCE DOSES	DATA GAPS/COMMENTS	STATUS
Captan Caswell #159 CAS No. 133-06-2 A.I. CODE: 081301 CFR No. 180.103 185.500	3gen reprod- rat NOEL= 12.5000 mg/kg 250.00 ppm LEL= 25.0000 mg/kg 500.00 ppm ONCO: B2 (MED NOTE)	Decreased pup body wts. ADI based on results of 1-gen. and 3-gen. repro- duction studies. Evi- dence of oncogenicity in rats and mice.	ADI UF -->100 OPP Rfd= 0.130000 EPA Rfd= 0.130000 Q*: 0.00360	No data gaps.	EPA verified 03/26/86 HED complete 12/22/88 EPA verified 01/18/89 WHO reviewed 1990 Rfd/PR reviewed 09/23/93 On IRIS.

COMMODITY CONTRIBUTION BY RAC FOR: U.S. POPULATION - 48 STATES

FOOD CODE	FOODNAME/FOODFORM	TOLERANCE (PPM)		TMR (UG/KG/DAY)		TMR (ONCO RISK)		ANTICIPATED RESIDUE (PPM)		ARC (UG/KG/DAY)		ARC (ONCO RISK)			
		(PPM)	(PPM)	TYPE	TMR	%RFD	TMR	(PPM)	(PPM)	(UG/KG/DAY)	(UG/KG/DAY)	%RFD	ONCO RISK		
530058A	SHEEP-MEAT BYPRODUCTS 21 COOKED-NFS	0.400	N	0.000020	0.000	0.000000000007	0.00100	0.000000	0.000	0.000000000000	0.000	0.000000000000			
530058B	SHEEP(ORGAN MEATS)-OTHER 21 COOKED-NFS	0.400	N	0.000008	0.000	0.000000000003	0.00100	0.000000	0.000	0.000000000000	0.000	0.000000000000			
53005FA	SHEEP(BONELESS)-FAT 21 COOKED-NFS	0.250	N	0.001074	0.001	0.000000000387	0.00100	0.000004	0.000	0.000000000001	0.000	0.000000000001			
53005KA	SHEEP(ORGAN MEATS)-KIDNEY 21 COOKED-NFS	0.400	N	0.000003	0.000	0.000000000001	0.00100	0.000000	0.000	0.000000000000	0.000	0.000000000000			
53005LA	SHEEP(ORGAN MEATS)-LIVER 00 NOT SPECIFIED (NO CONSUMPTION)	0.400	N	0.000000	0.000	0.000000000000	0.00100	0.000000	0.000	0.000000000000	0.000	0.000000000000			
53005MA	SHEEP(BONELESS)-LEAN (W/O REMOVEABLE FAT 21 COOKED-NFS	0.300	N	0.003745	0.003	0.00000001348	0.00100	0.000012	0.000	0.000000000004	0.000	0.000000000000			
530068A	PORK-MEAT BYPRODUCTS 21 COOKED-NFS	0.400	P	0.010032	0.008	0.000000003612	0.00100	0.000001	0.000	0.000000000000	0.000	0.000000000000			
530068B	PORK(ORGAN MEATS)-OTHER 21 COOKED-NFS	0.400	P	0.001540	0.001	0.000000000554	0.00100	0.000000	0.000	0.000000000001	0.000	0.000000000001			
53006FA	26 COOKED-FRESH-PICKLED, CORNED, OR CURED PORK(BONELESS)-FAT (INCLUDING LARD) 10 RAW-FRESH OR NFS	0.250	P	0.052051	0.040	0.000000018738	0.00100	0.000004	0.000	0.000000000001	0.000	0.000000000001			
53006KA	21 COOKED-NFS	0.400	P	0.000004	0.000	0.000000000001	0.00100	0.000002	0.000	0.000000000001	0.000	0.000000000001			
53006LA	PORK(ORGAN MEATS)-LIVER 21 COOKED-NFS	0.400	P	0.001928	0.001	0.000000000694	0.00100	0.000004	0.000	0.000000000001	0.000	0.000000000001			
53006MA	25 COOKED-FRESH-FRIED PORK(BONELESS)-LEAN (W/O REMOVEABLE FAT) 21 COOKED-NFS	0.300	P	0.117374	0.090	0.000000042255	0.00100	0.000001	0.000	0.000000000000	0.000	0.000000000000			
	25 COOKED-FRESH-FRIED 26 COOKED-FRESH-PICKLED, CORNED, OR CURED						0.00100	0.000048	0.000	0.000000000017	0.000	0.000000000017			
							0.00100	0.000162	0.000	0.000000000058	0.000	0.000000000058			
CROP GROUP TOTALS FOR RED MEAT:											0.648172	0.499	0.000000233342	0.002231	0.00000000803

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DRES Acute analysis for Captain including
fruits at tolerance level and ARs

 *NAME: CAPTAN
 *CASWELL NO: 159 CFR NO: CFR180.103 A 00000.0130 000250.000; 001000
 *CAS NO: 00133-06-2 SHAGHNESSY NO: 081301 B C
 *STATUS CODES:
 *RDV INFO: The LD value used in this analysis is 0.1 MG/KG of BODY WEIGHT/DAY
 *FILE INFO: No Tolerance Data Are Used--Without User Modifications.

 AR DATA: No User Modifications*

FEMALES(13+ YRS)

ESTIMATED % OF POTENTIAL		MEAN DAILY RESIDUE CONTRIBUTION PER USER-DAY	
PERSON DAYS THAT ARE USER-DAYS	AS PERCENT OF RDV	MG/KG BODY WEIGHT/DAY	AS PERCENT OF RDV
0	0.00	0.000000	0.00
99.85	0.017850	0.017850	17.85
ESTIMATED % OF POPULATION USER-DAYS WITH RESIDUE CONTRIBUTION EXCEEDING X TIMES THE RDV, FOR X=			
0 .2 .4 .6 .8	1 1.2 1.4 1.6 1.8	2 3 4	5 10 15 20
TOLERANCES:	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
ANTICIPATED RESIDUES:	100 26 17 10 5	3 2 1 1 0	0 0 0 0 0

Exposure = RDV x X = 1.8 x 0.1 = 0.18 mg/kg/day
 MOE = MOEL + Exposure = 10 mg/kg/day + 0.18 mg/kg/day = 56

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