

Maximum Residual Limits (MRLs) of Insecticides in Organic Foods

S. No.	Name of Insecticide	Food Commodity	Tolerance limit mg/kg (ppm) for Organic Foods	Instrument to be used to achieve the LoQ
1.	Carbaryl	Fish	0.01*	LC-MS/MS
		Food grains	0.075	LC-MS/MS
		Milled food grains	0.01*	LC-MS/MS
		Okra and leafy vegetables	0.5	LC-MS/MS
		Potatoes	0.01*	LC-MS/MS
		Other vegetables	0.25	LC-MS/MS
		Cottonseed (whole)	0.05	LC-MS/MS
		Maize cob (kernels)	0.05	LC-MS/MS
		Rice	0.125	LC-MS/MS
		Maize	0.025	LC-MS/MS
		Chillies	0.25	LC-MS/MS
2.	Dichlorvos (content of dichloroacetaldehyde (D.C.A.) be reported where possible)	Foodgrains	0.05*	LC-MS/MS
		Milled Food Grains	0.0125	LC-MS/MS
		Vegetables	0.0075	LC-MS/MS
		Fruits	0.005*	LC-MS/MS
3.	Dicofol	Fruits & Vegetables	0.25	GC-MS/MS
		Tea (dry manufactured)	0.25	GC-MS/MS
		Chillies	0.05	GC-MS/MS
4.	Dimethoate (residue to be determined as dimethoate and expressed as dimethoate)	Fruits & Vegetables	0.1	LC-MS/MS
		Chillies	0.025	LC-MS/MS
		Cottonseed	0.01*	LC-MS/MS
		Cottonseed oil (crude)	0.01*	LC-MS/MS
5.	Hydrogen cyanide	Foodgrains	1.875	GC-FID wit purge and trap system
		Milled Food Grains	0.15	GC-FID wit purge and trap system
6.	Hydrogen phosphide	Foodgrains	1.0*	GC-MS
		Milled Food Grains	1.0*	GC-MS
7.	Inorganic bromide (determined and expressed as	Foodgrains	1.25	GC-ECD
		Milled Food Grains	1.25	GC-ECD
		Fruits	1.5	GC-ECD

	total bromide from all sources)	Dried Fruits	1.5	GC-ECD
		Spices	20	GC-ECD
8.	Hexachlorocyclohexane and its Isomers			GC-MS/MS
	Alpha (α) Isomer	Rice grain unpolished	0.005*	GC-MS/MS
		Rice grain polished	0.005*	GC-MS/MS
		Milk (whole)	0.005*	GC-MS/MS
		Fruits and vegetable	0.05	GC-MS/MS
		Fish	0.0125	GC-MS/MS
		Carbonated Water	0.0005	GC-MS/MS
		Beta (β) Isomer :	Rice grain unpolished	0.005*
	Rice grain polished		0.005*	GC-MS/MS
	Milk (whole)		0.005*	GC-MS/MS
	Fruits and vegetable		0.05	GC-MS/MS
	Fish		0.0125	GC-MS/MS
	Carbonated Water		0.0005*	GC-MS/MS
	Delta (δ) isomer:		Rice grain Unpolished	0.005*
		Rice grain Polished	0.005*	GC-MS/MS
		Milk (whole)	0.005*	GC-MS/MS
		Fruits & vegetables	0.05	GC-MS/MS
		Fish	0.0125	GC-MS/MS
		Carbonated Water	0.0005*	GC-MS/MS
9.		Malathion (Malathion to be determined and expressed as combined residues of malathion and malaaxon)	Food grains	0.2
	Milled food grains		0.05	LC-MS/MS
	Fruits		0.2	LC-MS/MS
	Vegetables		0.15	LC-MS/MS
	Dried fruits		0.4	LC-MS/MS
	Carbonated Water		0.0005*	LC-MS/MS
10.	Chlorfenvinphos (Residues to be measured as alpha and beta isomers of Chlorfenvinphos)		Foodgrains	0.005*
		Milled Foodgrains	0.005*	GC-MS/MS
		Milk and Milk Products	0.01*	GC-MS/MS
		Meat and Poultry	0.01*	GC-MS/MS
		Vegetables	0.005*	GC-MS/MS
		Groundnuts	0.005*	GC-MS/MS
		Cotton seed	0.005*	GC-MS/MS

11.	Chlorobenzilate	Fruits	0.05	GC-MS/MS
		Dry Fruits, Almonds and Walnuts	0.01*	GC-MS/MS
12.	Chlorpyrifos	Foodgrains	0.005*	GC-MS/MS
		Milled foodgrains	0.005*	GC-MS/MS
		Fruits	0.025	GC-MS/MS
		Potatoes and Onions	0.005*	GC-MS/MS
		Cauliflower and Cabbage	0.005*	GC-MS/MS
		Other vegetables	0.01*	GC-MS/MS
		Meat and Poultry	0.005*	GC-MS/MS
		Milk and Milk Products	0.005*	GC-MS/MS
		Cotton seed	0.005*	GC-MS/MS
		Cottonseed oil (Crude)	0.005*	GC-MS/MS
		Carbonated Water	0.0005*	GC-MS/MS
		13.	2,4-Dichlorophenoxy acetic acid	Foodgrains
Milled foodgrains	0.01*			LC-MS/MS
Potatoes	0.01*			LC-MS/MS
Milk and Milk Products	0.01			LC-MS/MS
Meat and Poultry	0.01			LC-MS/MS
Eggs	0.01*			LC-MS/MS
Fruits	0.1			LC-MS/MS
14.	Ethion (Residues to be determined as ethion and its oxygen analogue and expressed as ethion)	Tea (dry manufactured)	0.25	LC-MS/MS
		Cucumber and Squash	0.025	LC-MS/MS
		Other Vegetables	0.05	LC-MS/MS
		Cotton seed	0.025	LC-MS/MS
		*Milk and Milk Products	0.025	LC-MS/MS
		Meat and Poultry	0.01	LC-MS/MS
		Eggs	0.01*	LC-MS/MS
		Food grains	0.005*	LC-MS/MS
		Milled food grains	0.005*	LC-MS/MS
		Peaches	0.05	LC-MS/MS
		Other fruits	0.1	LC-MS/MS
		Dry fruits	0.01*	LC-MS/MS
15.	Monocrotophos	Food grains	0.005*	LC-MS/MS
		Milled Food grains	0.005*	LC-MS/MS
		Citrus fruits	0.01*	LC-MS/MS
		Other fruits	0.01*	LC-MS/MS
		Cottonseed	0.005*	LC-MS/MS
		Cottonseed oil	0.005*	LC-MS/MS

		(raw)		
		Meat and Poultry	0.005	LC-MS/MS
		Milk and Milk Products	0.005	LC-MS/MS
		Eggs	0.005*	LC-MS/MS
		Coffee (Raw beans)	0.005*	LC-MS/MS
		Cardamom	0.025	LC-MS/MS
16.	Paraquat dichloride (Determined as Paraquat cations)	Food grains	0.01*	LC-MS/MS
		Milled food grains	0.01*	LC-MS/MS
		Potato	0.01*	LC-MS/MS
		Other vegetables	0.01*	LC-MS/MS
		Cotton seed	0.01*	LC-MS/MS
		Cottonseed oil (edible refined)	0.01*	LC-MS/MS
		Milk (whole)	0.01	LC-MS/MS
		Fruits	0.01*	LC-MS/MS
17.	Phosalone	Pears	0.1	LC-MS/MS
		Citrus fruits	0.05	LC-MS/MS
		Other fruits	0.25	LC-MS/MS
		Potatoes	0.005*	LC-MS/MS
		Other vegetables	0.05	LC-MS/MS
		Rapeseed/Mustard Oil (crude)	0.01*	LC-MS/MS
18.	Trichlorfon	Foodgrains	0.005*	LC-MS/MS
		Milled food grains	0.005*	LC-MS/MS
		Sugar beet	0.005*	LC-MS/MS
		Fruits and Vegetables	0.005*	LC-MS/MS
		Oil seeds	0.005*	LC-MS/MS
		Edible Oil (refined)	0.005*	LC-MS/MS
		Meat and Poultry	0.005*	LC-MS/MS
		Milk (whole)	0.005*	LC-MS/MS
19.	Thiometon(Residues determined as thiometon its sulfoxide and sulphone expressed as thiometon)	Food grains	0.01*	LC-MS/MS
		Milled food grains	0.01*	LC-MS/MS
		Fruits	0.01*	LC-MS/MS
		Potato, Carrots and Sugar beets	0.01*	LC-MS/MS
		Other vegetables	0.01*	LC-MS/MS
20.	Acephate	Safflower seed	0.01*	LC-MS/MS
		Cotton Seed	0.01*	LC-MS/MS
21.	Methamidophos (A metabolite of Acephate)	Safflower seed	0.005*	LC-MS/MS
		Cotton seed	0.005*	LC-MS/MS
22.	Atrazine	Maize	0.01*	LC-MS/MS
		Sugarcane	0.0125	LC-MS/MS
23.	Carbendazim	Food Grains	0.025	LC-MS/MS

	(sum of benomyl and carbendazim expressed as carbendazim)	Milled food grains	0.01*	LC-MS/MS
		Vegetables	0.025	LC-MS/MS
		Mango	0.1	LC-MS/MS
		Banana (whole)	0.05	LC-MS/MS
		Other fruits	0.25	LC-MS/MS
		Cotton seed	0.01*	LC-MS/MS
		Groundnut	0.01*	LC-MS/MS
		Sugar beet	0.01*	LC-MS/MS
		Dry fruits	0.01*	LC-MS/MS
		Eggs	0.01*	LC-MS/MS
		Meat & Poultry	0.01*	LC-MS/MS
		Milk & Milk Products	0.005*	LC-MS/MS
24.	Benomyl (sum of benomyl and carbendazim expressed as carbendazim)	Food grains	0.025	LC-MS/MS
		Milled food grains	0.01*	LC-MS/MS
		Vegetables	0.025	LC-MS/MS
		Mango	0.1	LC-MS/MS
		Banana (whole)	0.05	LC-MS/MS
		Other fruits	0.25	LC-MS/MS
		Cotton seed	0.01*	LC-MS/MS
		Groundnut	0.01*	LC-MS/MS
		Sugar beet	0.01*	LC-MS/MS
		Dry fruits	0.01*	LC-MS/MS
		Eggs	0.01*	LC-MS/MS
		Meat & Poultry	0.01*	LC-MS/MS
		Milk & Milk Products	0.01*	LC-MS/MS
25.	Captan (Sum of captan and THPI, expressed as captan)	Fruit & Vegetables	0.75	GC-MS/MS
26.	Carbofuran (sum of carbofuran and 3-hydroxy carbofuran expressed as carbofuran)	Food grains	0.005*	LC-MS/MS
		Milled food grains	0.005*	LC-MS/MS
		Fruit & Vegetables	0.005*	LC-MS/MS
		Oil seeds	0.01*	LC-MS/MS
		Sugarcane	0.01*	LC-MS/MS
		Meat & Poultry	0.01*	LC-MS/MS
		Milk & Milk Products	0.01*	LC-MS/MS
27.	Copper oxychloride (determined as copper)	Fruit	1.0	AAS/ICP-MS
		Potato	0.05	AAS/ICP-MS
		Other vegetables	1.0	AAS/ICP-MS
28.	Cypermethrin (sum of isomers) (fat soluble residue)	Wheat grains	0.01*	GC-MS/MS
		Milled wheat grains	0.01*	GC-MS/MS
		Brinjal	0.01*	GC-MS/MS
		Cabbage	0.1	GC-MS/MS
		Bhindi	0.01*	GC-MS/MS

		Oil seeds except groundnut	0.01*	GC-MS/MS
		Meat and Poultry	0.01*	GC-MS/MS
		Milk and Milk Products	0.01*	GC-MS/MS
29.	Decamethrin/ Deltamethrin	Cotton Seed	0.01*	GC-MS/MS
		Food grains	0.025	GC-MS/MS
		Milled Food grains	0.01*	GC-MS/MS
		Rice	0.005*	GC-MS/MS
30.	Edifenphos	Rice	0.005*	LC-MS/MS
		Rice bran	0.05	LC-MS/MS
		Eggs	0.01*	LC-MS/MS
		Meat and poultry	0.01*	LC-MS/MS
		Milk and Milk products	0.01*	LC-MS/MS
31.	Fenvalerate (fat soluble residue)	Cauliflower	0.1	GC-MS/MS
		Brinjal	0.1	GC-MS/MS
		Okra	0.1	GC-MS/MS
		Cotton Seed	0.01*	GC-MS/MS
		Cotton seed oil	0.01*	GC-MS/MS
		Meat and Poultry	0.05	GC-MS/MS
		Milk and Milk Product	0.01*	GC-MS/MS
32.	Dithiocarbamates (the residue tolerance limit are determined and expressed as mg/CS ₂ /kg and refer separately to the residues arising from any or each group of dithiocarbamates)	Food Grains Milled food grains Potatoes	0.01*	GC-MS
	(b) Ethylene bis-dithiocarbamates resulting from the use of mancozeb, maneb or zineb (including zineb derived from nabam plus zinc sulphate)	Cherries Other fruits	0.05 0.15	GC-MS
	(c) Mancozeb	Chillies	0.05	GC-MS
33.	Phenthoate	Food grains	0.005*	LC-MS/MS
		Milled food grains	0.005*	LC-MS/MS

		Oilseeds	0.005*	LC-MS/MS
		Edible oils	0.01*	LC-MS/MS
		Eggs	0.01*	LC-MS/MS
		Meat & Poultry	0.01*	LC-MS/MS
		Milk & Milk products	0.01*	LC-MS/MS
34.	Phorate (sum of Phorate, its oxygen analogue and their sulphoxides and sulphones, expressed as phorate)	Food grains	0.01*	LC-MS/MS
		Milled food grains	0.01*	LC-MS/MS
		Tomatoes	0.005*	LC-MS/MS
		Other vegetables	0.01*	LC-MS/MS
		Fruits	0.005*	LC-MS/MS
		Oil seeds	0.01*	LC-MS/MS
		Edible oils	0.01*	LC-MS/MS
		Sugarcane	0.01*	LC-MS/MS
		Eggs	0.01*	LC-MS/MS
		Meat & Poultry	0.01*	LC-MS/MS
		Milk & Milk Products	0.01*	LC-MS/MS
35.	Pirimiphos-methyl	Rice	0.025	LC-MS/MS
		Food grains except Rice	0.25	LC-MS/MS
		Milled food grains except rice	0.05	LC-MS/MS
		Eggs	0.01*	LC-MS/MS
		Meat & Poultry	0.01*	LC-MS/MS
		Milk & Milk Products	0.01*	LC-MS/MS
36.	Alachlor	Cotton Seed	0.01*	LC-MS/MS
		Groundnut	0.01*	LC-MS/MS
		Maize	0.01*	LC-MS/MS
		Soyabeans	0.01*	LC-MS/MS
37.	Alfa Naphthyl Acetic Acid (A.N.A.)	Pine-Apple	0.025	LC-MS/MS
38.	Bitertanol	Wheat	0.01*	LC-MS/MS
		Groundnut	0.01*	LC-MS/MS
39.	Cartap hydrochloride	Rice	0.025	LC-MS/MS
40.	Chlormequat chloride (CCC)	Grape	0.05	LC-MS/MS
		Cotton Seed	0.05	LC-MS/MS
41.	Chlorothalonil	Groundnut	0.01*	GC-MS/MS
		Potato	0.01*	GC-MS/MS
42.	Diflubenzuron	Cotton Seed	0.01*	LC-MS/MS
43.	Dodine	Apple	0.25	LC-MS/MS
44.	Diuron	Cotton Seed	0.05	LC-MS/MS
		Banana	0.005*	LC-MS/MS
		Maize	0.025	LC-MS/MS
		Citrus (Sweet Orange)	0.05	LC-MS/MS

		Grapes	0.05	LC-MS/MS
45.	Ethephon	Pine Apple	0.1*	LC-MS/MS
		Coffee	0.01*	LC-MS/MS
		Tomato	0.1	LC-MS/MS
		Mango	0.1	LC-MS/MS
46.	Fluchloralin	Cotton Seed	0.01*	LC-MS/MS
		Soya Beans	0.01*	LC-MS/MS
47.	Malic hydrazide	Onion	0.75	LC-MS/MS
		Potato	2.5	LC-MS/MS
48.	Metalaxyl	Bajra	0.01*	LC-MS/MS
		Maize	0.01*	LC-MS/MS
		Sorghum	0.01*	LC-MS/MS
49.	Methomyl	Cotton Seed	0.01*	LC-MS/MS
50.	Methyl chlorophenoxyacetic Acid(M.C.P.A.)	Rice	0.01*	LC-MS/MS
		Wheat	0.01*	LC-MS/MS
51.	Oxadiazon	Rice	0.005*	LC-MS/MS
52.	Oxydemeton methyl	Food-grains	0.01*	LC-MS/MS
53.	Permethrin	Cucumber	0.025	GC-MS/MS
		Cotton Seed	0.025	GC-MS/MS
		Soya Beans	0.01*	GC-MS/MS
		Sunflower Seed	0.05	GC-MS/MS
54.	Quinalphos	Rice	0.005*	LC-MS/MS
		Pigeon pea	0.005*	LC-MS/MS
		Cardamom	0.01*	LC-MS/MS
		Tea	0.01*	LC-MS/MS
		Fish	0.01*	LC-MS/MS
		Chillies	0.01*	LC-MS/MS
55.	Thiophanate methyl	Apple	0.25	LC-MS/MS
		Papaya	0.35	LC-MS/MS
56.	Triazophos	Chillies	0.01*	LC-MS/MS
		Rice	0.005*	LC-MS/MS
		Cotton seed oil	0.01*	LC-MS/MS
		Soyabean oil	0.01*	LC-MS/MS
57.	Profenofos	Cotton seed oil	0.01*	LC-MS/MS
58.	Fenpropathrin	Cotton seed oil	0.01*	LC-MS/MS
59.	Fenarimol	Apple	0.25	LC-MS/MS
60.	Hexaconazole	Apple	0.005*	LC-MS/MS
61.	Iprodione	Rape seed	0.025	GC-MS/MS
		Mustard seed	0.025	GC-MS/MS
		Rice	0.5	GC-MS/MS
		Tomato	0.25	GC-MS/MS
		Grapes	0.5	GC-MS/MS
62.	Tridemorph	Wheat	0.005*	LC-MS/MS
		Grapes	0.025	LC-MS/MS
		Mango	0.005*	LC-MS/MS

63.	Penconazole	Grapes	0.01	LC-MS/MS
64..	Propiconazole	Wheat	0.005*	LC-MS/MS
65.	Myclobutanil	Groundnut seed	0.01*	LC-MS/MS
		Grapes	0.05	LC-MS/MS
66.	Sulfosulfuron	Wheat	0.01*	LC-MS/MS
67.	Trifluralin	Wheat	0.01*	LC-MS/MS
68.	Ethoxysulfuron	Rice	0.01*	LC-MS/MS
69.	Metolachlor	Soybean Oil	0.01*	LC-MS/MS
70.	Glyphosate	Tea	0.05	LC-MS/MS
71.	Linuron	Pea	0.01*	LC-MS/MS
72.	Oxyfluorfen	Rice	0.01*	LC-MS/MS
		Groundnut oil	0.01*	LC-MS/MS
73.	Carbosulfan	Rice	0.01*	LC-MS/MS
74.	Tricyclazole	Rice	0.005*	LC-MS/MS
75.	Imidacloprid	Cotton seed Oil	0.01*	LC-MS/MS
		Rice	0.005*	LC-MS/MS
76.	Butachlor	Rice	0.005*	LC-MS/MS
77.	Chlorimuron-ethyl	Wheat	0.01*	LC-MS/MS
78.	Diclofop-methyl	Wheat	0.01*	LC-MS/MS
79.	Metribuzin	Soyabean Oil	0.01*	LC-MS/MS
80.	Lambda-cyhalothrin	Cotton seed Oil	0.01*	GC-MS/MS
81.	Fenazaquin	Tea	0.15	LC-MS/MS
82.	Pendimethalin	Wheat	0.01*	LC-MS/MS
		Rice	0.01*	LC-MS/MS
		Soyabean Oil	0.01*	LC-MS/MS
		Cotton seed Oil	0.01*	LC-MS/MS
83.	Pretilachlor	Rice	0.01*	LC-MS/MS
84.	Fluvalinate	Cotton seed Oil	0.01*	GC-MS/MS
85.	Metsulfuron-methyl	Wheat	0.01*	LC-MS/MS
86.	Methabenzthiazuron	Wheat	0.025	LC-MS/MS
87.	Imazethapyr	Soyabean oil	0.01*	LC-MS/MS
		Groundnut oil	0.01*	LC-MS/MS
88.	Cyhalofop-butyl	Rice	0.025	LC-MS/MS
89.	Triallate	Wheat	0.01*	LC-MS/MS
90.	Spinosad	Cotton seed oil	0.01*	LC-MS/MS
		Cabbage	0.005*	LC-MS/MS
		Cauliflower	0.005*	LC-MS/MS
91.	Thiamethoxam	Rice	0.005*	LC-MS/MS
92.	Fenobucarb	Rice	0.01*	LC-MS/MS
93.	Thiodicarb	Cotton seed oil	0.01*	LC-MS/MS
94.	Anilophos	Rice	0.005*	LC-MS/MS
95.	Fenoxy-prop-p-ethyl	Wheat	0.01*	LC-MS/MS
		Soyabean Seed	0.01*	LC-MS/MS
96.	Glufosinate-ammonium	Tea	0.01*	LC-MS/MS

97.	Clodinafop-propargyl	Wheat	0.01*	LC-MS/MS
98.	Dithianon	Apple	0.01*	LC-MS/MS
99.	Iprobenfos (Kitazin)	Rice	0.01	LC-MS/MS
100.	Isoprothiolane	Rice	0.005*	LC-MS/MS
101.	Acetamiprid	Cotton seed oil	0.01*	LC-MS/MS
102.	Cymoxanil	Grapes	0.005*	LC-MS/MS
103.	Triadimefon	Wheat	0.025	LC-MS/MS
		Pea	0.005*	LC-MS/MS
		Grapes	0.1	LC-MS/MS
104.	Fosetyl-Al	Grapes	0.5	LC-MS/MS
		Cardamom	0.01*	LC-MS/MS
105.	Isoproturon	Wheat	0.005*	LC-MS/MS
106.	Propargite	Tea	0.5	LC-MS/MS
107.	Difenoconazole	Apple	0.005*	LC-MS/MS
108.	b-Cyfluthrin	Cotton seed	0.01*	GC-MS/MS
109.	Ethofenprox	Rice	0.01*	GC-MS/MS
110.	Bifenthrin	Cotton seed	0.01*	GC-MS/MS
111.	Benfuracarb	Red Gram	0.01*	LC-MS/MS
		Rice	0.01*	LC-MS/MS
112.	Quizalofop-ethyl	Soyabean seed	0.01*	LC-MS/MS
113.	Flufenacet	Rice	0.01*	LC-MS/MS
114.	Buprofezin	Rice	0.005*	LC-MS/MS
115.	Dimethomorph	Grapes	0.005*	LC-MS/MS
		Potatoes	0.005*	LC-MS/MS
116.	Chlorfenopyr	Cabbage	0.005*	LC-MS/MS
117.	Indoxacarb	Cotton seed	0.01*	LC-MS/MS
		Cottonseed oil	0.01*	LC-MS/MS
		Cabbage	0.005*	LC-MS/MS
118.	Metiram	Tomato	0.25	GC-MS/MS
		Ground nut seed	0.01*	GC-MS/MS
		Ground nut seed oil	0.01*	GC-MS/MS
119.	Lufenuron	Cabbage	0.015	LC-MS/MS
120.	Carpropamid	Rice	0.05	LC-MS/MS
121.	Novaluron	Cottonseed	0.01*	LC-MS/MS
		Cottonseed oil	0.01*	LC-MS/MS
		Tomato	0.01*	LC-MS/MS
		Cabbage	0.01*	LC-MS/MS
122.	Oxadiargyl	Rice	0.01*	LC-MS/MS

123.	Pyrazosulfuron ethyl	Rice	0.01*	LC-MS/MS
124.	Clomazone	Rice	0.01*	LC-MS/MS
		Soyabean seed	0.01*	LC-MS/MS
		Soyabean seed oil	0.01*	LC-MS/MS
125.	Tebuconazole	Wheat	0.01*	LC-MS/MS
126.	Propineb	Apple	0.05	GC-MS/MS
		Pomegranate	0.025	GC-MS/MS
		Potato	0.025	GC-MS/MS
		Green Chillies	0.1	GC-MS/MS
		Grapes	0.025	GC-MS/MS
127.	Thiachlorprid	Cottonseed	0.01*	LC-MS/MS
		Cottonseed oil	0.01*	LC-MS/MS
		Rice	0.005*	LC-MS/MS

* MRL recommended at LoQ