

PRODUCT DATA SHEET

PQ-80®

PRODUCT DESCRIPTION

PQ-80® is an effective, water-soluble fungicide concentrate formulation with a mild scent containing Copper-8-Quinolinolate (Oxine Copper) for the control of sapstain and mold on both hardwoods and softwoods. PQ-80 is also suitable for pallets, canvas and other textiles, rope and nets, and paper products. PQ-80 may be applied by spraying or dipping on freshly-cut lumber for sapstain control. PQ-80 is compatible with commonly-used, water-reducible insecticides, such as X-Lance®.

The active ingredient in PQ-80, copper-8-quinolinolate, is allowed by FDA as a preservative for wooden articles used in transporting, packaging or holding agricultural products. (CFR TITLE 21, §178.3800)

GENERAL USE GUIDELINES

PQ-80 is supplied as a concentrate to be diluted, either manually or automatically, in accordance with instructions. PQ-80 can be applied to wood products by dip, spray, or flow coat. Adjust-O-Bor® is recommended as a corrosion inhibitor with PQ-80 and should be added to the water before addition of PQ-80. For best results, one gallon of Adjust-O-Bor® should be added for each one gallon of PQ-80. The resulting solution will require periodic agitation. A pH of 5 or higher should be maintained when using PQ-80 under most conditions.

As a general guideline, for best control of mold and stain, the diluted (ready-to-use) liquid fungicide solution should be applied as soon as possible after sawing. In no case should more than 48 hours elapse between sawing and treatment of the wood. This is most important in situations where weather conditions are favorable for fungal growth. Otherwise, fungal attack may extend below the wood surface, beyond the reach of a surface fungicide treatment.

Remove sawdust and other debris from application apparatus daily to maintain maximum solution effectiveness. Freshly-treated lumber and treatment solutions should be protected from rain.

PQ-80 APPLICATION TECHNIQUES

The most common method of applying anti-stain chemicals is a dip immersion. Experience has proven that an immersion of a single board for a short duration (approximately ten seconds) in a properly-maintained solution at the dilution ratio of 1 gallon of PQ-80 per 200 gallons of water will control stain and mold under moderate staining conditions. Dipping complete packages of lumber will normally require 30 seconds to three minutes immersion. All surfaces should be treated in order to ensure control. As a rule of thumb, remove bundles when air bubbles stop coming from between the layers of boards. Dip times can be reduced by placing the lumber on an angle with the surface of the dip solution as it is immersed.

PQ-80, in the absence of buffering, is corrosive to mild-steel, galvanized steel and brass. Adjust-O-Bor is recommended with the use of PQ-80 to reduce corrosion. Mild steel equipment can be coated to reduce corrosion. The mild steel must be cleaned and sandblasted and a coating applied which is resistant to abrasion. Epoxies (bis-epoxies) are usually best suited for this purpose. Use epoxy manufacturing guide to allow proper curing.

TYPICAL USE RATES

Dilution rate will depend on biological stress, temperature, humidity, species and application method. Less active ingredient is needed per board foot when climate is cool and control for short-term periods desired. Increased solution concentrations should be used when stress level is high or to minimize sapstain in fresh-cut lumber.

Smooth-surfaced lumber normally retains half as much fungicide solution as rough-cut wood and hence needs a stronger concentration than Base Strength to deposit the necessary amount of fungicide.

DOSAGE

<u>STAIN CONDITIONS</u>	<u>DIP VAT</u>	<u>CROSS-THE-CHAIN VAT</u>	<u>ULV SPRAYER (Cu-8 dep. rate)</u>
Low	1:300	1:300	8-12 $\mu\text{g}/\text{cm}^2$
Moderate	1:200	1:200	10-15 $\mu\text{g}/\text{cm}^2$
High	1:100	1:100	15-25 $\mu\text{g}/\text{cm}^2$

TREATING PALLETS FOR MOLD

For best control, pallets must be mold free when treated. If the pallets can't be built and treated quickly enough to prevent mold growth, the components should be treated. Pallet components may require a longer dip time of up to 5 minutes. For treating pallets or pallet stock, the PQ-80 dilution should range from a minimum of 1:200 for mild conditions up to 1:50 for severe applications. For spray or flood coat, even stronger dilutions may be needed (as high as 1:20 in some cases). Please consult with your ISK Biocides representative to determine proper dilution and dip time for your conditions.

TEST RESULTS

PQ-80 has been evaluated by independent testing laboratories, sawmills and test sites with outstanding results.

The following is a summary of results of three tests.

Test One:

Location: Natchez, MS

Time Frame: 5/1/2002 – 5/29/2002

Rating Scale 0 - 10

Larger values indicate better control. Values of 0 indicate no control. Sample boards were evaluated at 2-months.

OAK

<u>Treatment</u>	<u>4 Weeks</u>
0.5% PQ-80	9.8
1.0% Busan® 1009 + 1.0% Busperse	9.2
1.0% NeXgen® + 0.25% NeX-Brite®	9.7
1.0% Sta Brite® P	9.8
Untreated Control	7.8

An average of 12 boards.

Rating: 0 = 100% stain

10 = 0% stain

Test Two: Silus, AL

Time Frame: 5/21/2002 – 6/5/2002

Rating Scale 0 - 10

Larger values indicate better control. Values of 0 indicate no control. Sample boards were evaluated at 15 days.

SOUTHERN YELLOW PINE

<u>Treatment</u>	<u>15 Days</u>
0.67% Sta Brite P + 0.25% NeX-Brite	9.5
0.5% PQ-80 + 0.5% Adjust-O-Bor	9.4
1.0% SSCC	8.3
Untreated Control	3.1

An average of 12 boards.

Rating: 0 = 100% stain

10 = 0% stain

Test Three: Richton, MS

Time Frame: 5/16/2002 – 6/13/2002

Rating Scale 0 - 10

Larger values indicate better control. Values of 0 indicate no control. Sample boards were evaluated at 4 weeks.

OAK

<u>Treatment</u>	<u>4 Weeks</u>
0.83% NP-1 Star + 0.83% ISCA 250	9.3
0.5% PQ-80 + 0.5% Adjust-O-Bor	9.7
0.67% Tuff Brite 2 + 0.67% NeX- Brite	9.6
Untreated Control	7.7

*An average of 14 boards.

Rating: 0 = 100% stain

10 = 0% stain

SOUTHERN YELLOW PINE

<u>Treatment</u>	<u>4 Weeks</u>
0.83% NP-1 Star + 0.83% ISCA 250	7.6
0.5% PQ-80 + 0.5% Adjust-O-Bor	8.6
0.67% Tuff-Brite® 2 + 0.67% NeX-Brite	7.6
Untreated Control	1.0

*An average of 14 boards.

Rating: 0 = 100% stain

10 = 0% stain

MONITORING SOLUTION STRENGTH

PQ-80 is not known to strip from the treating solution during the treating of freshly-sawn lumber; however, work solutions can be easily checked through the use of the PQ-80 test kit available from ISK Biocides, Inc. Adjust-O-Bor is normally used with PQ-80 to adjust the pH and reduce corrosion. Adjust-O-Bor is typically used at a 1:1 ratio with the PQ-80. Properly buffered PQ-80 (pH greater or equal to 5.0) is not corrosive.

AGITATION

It is good practice to agitate your working solution no matter what product is being used. This product can be easily agitated in dip vats or in other application equipment. Agitation is best achieved by use of a propeller-type mixer such as is available from ISK Biocides Inc. For best results, always make up the desired solution strength in a pre-mix tank and agitate well before adding to the work solution.

CORROSIVITY

Results of static tests of ready-to-use solutions of buffered PQ-80 versus NP-1 resulted in 40 times less corrosion with PQ-80. Also, buffered PQ-80 at 0.5% in water was less corrosive than water alone on mild steel coupons in similar tests.

LEACHABILITY

The active ingredient in PQ-80 binds to wood substrates. Please allow a minimum of 30 minutes dry after dipping to allow the Copper-8-Quinolinolate to fix to the wood prior to moving freshly treated lumber to a position where it is exposed to falling rain.

COMPATIBILITY

PQ-80 may be used in conjunction with water-reducible insecticide formulations labeled to prevent infestation of wood with beetles and wood-infesting or wood-destroying insects. This product is compatible with products having, as an active ingredient, permethrin and other synthetic pyrethroids, such as X-Lance®.

TANK CONVERSION

Tank conversion is always best accomplished by emptying previous formulations and removing all debris present as tank residue. PQ-80 is not completely compatible with certain products on the market, and additional care needs to be used when converting from one of these to PQ-80. For mild steel tanks, coating with a suitable sealer is recommended prior to charging with any sapstain product. For assistance during tank conversion, please contact ISK Biocides Inc.

HANDLING AND STORAGE

KEEP OUT OF REACH OF CHILDREN

Do not handle until all safety precautions have been read and understood. See product label and Safety Data Sheet for hazards and precautions.

Observe good personal hygiene practices. Change protective gloves/clothing when signs of contamination appear.

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Mix contents before using. Do not allow to freeze.

For product emergency, call Chemtrec at 800-424-9300

TECHNICAL DATA

PHYSICAL DATA		INGREDIENTS	
Flashpoint	>113°C PMCC	Copper-8-Quinolinolate	10.0%
Appearance	Viscous, Dark Orange/Brown Liquid	Inert Ingredients	90.0%
Weight/Gallon	9.0 - 9.5 lbs./gallon		100.0%
pH (1% Aqueous Sol.)	2.0 - 2.5		
Specific Gravity	1.13		
Stability	Do not use in contact with concrete or mild steel unless properly protected (epoxy coating or other non-reactive coatings).		
Storage	Concentrate is stable over a wide temperature range. (Minimum two years storage at normal temperatures (80°F / 27°C))		

PACKAGING

Available in 275 - gal. Tote, 55 - gal. Drum, 5 - gal. Pail

WARRANTY AND LIMITATION OF DAMAGES

Seller warrants to those persons lawfully acquiring title to this product that at the time of the first sale of this product by seller this product conformed to its chemical description and that it was reasonably fit for the purposes stated on the product label when used both in accordance with the Directions for Use appearing on the product label and under normal conditions of use. Buyers and users of this product assume the risk of all loss or damage from use or handling of this product that results from their failure to read and comply with the Directions for Use of this product, which appear on the product label. SELLER MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY, INCLUDING ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR OF MERCHANTABILITY, AND NO AGENT OF SELLER IS AUTHORIZED TO DO SO. Unless expressly prohibited by state law, the liability of seller for any breach of warranty shall not exceed the purchase price of the product as to which a claim is made.

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