



Healthier Way to Life

RELYON

HOW TO IMPLEMENT RELYON IN
SWIMMING POOLS & WHIRL POOLS

Prepared by :-

PROPHYLAXIS

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DISINFECTION OF SWIMMING POOLS WITH RELYON

THE MOST WIDESPREAD USED DISINFECTANT FOR SWIMMING POOLS IS CHLORINE. THE USE OF CHLORINE IMPLIES NUMEROUS GENERAL ACKNOWLEDGED DISADVANTAGES AND HAZARDS. THE HAZARDS OF CHLORINE INVOLVE BOTH SAFETY AND HEALTH RELATED RISKS AND EFFECTS THAT CAN ONLY BE AVOIDED BY ENDING THE USE OF CHLORINE AND APPLYING A DISINFECTANT WITH COMPLETELY DIFFERENT CHARACTERISTICS.

RELYON IS A SUPERIOR DISINFECTION CONCEPT THAT HAS BEEN ACKNOWLEDGED IN NUMEROUS COUNTRIES AND THAT RE-DEFINES THE MINIMUM CHARACTERISTICS OF A 21ST CENTURY DISINFECTANT.

THE SWIMMING POOL INDUSTRY HAS BEEN LOOKING FOR ALTERNATIVES TO REPLACE THE USE OF CHLORINE FOR A LONG TIME. MANY CHEMICAL AND MECHANICAL CONCEPTS HAVE BEEN TESTED AND EVALUATED BUT WITH ONLY LIMITED RESULTS OR NEW PROBLEMS TO BE TACKLED.

RELYON AN ADVANCED DELIVERY SYSTEM TO GENERATE 99% PURE CHLORINE DIOXIDE IN AN AQUEOUS 0.76% SOLUTION ALLOWS A FULL REPLACEMENT OF CHLORINE WITH SUBLIME DISINFECTION RESULTS SATISFYING THE REQUIREMENTS AND NEED OF THE SWIMMING POOL INDUSTRY AND SWIMMERS!

WHEN **RELYON** IS APPLIED IN A SWIMMING POOL MANY OF THE UNDESIRED LIMITATIONS OF CLASSICAL DISINFECTANTS ARE ABSENT E.G.:

- **RELYON** PROVIDES MORE MICROBIOLOGICAL SECURITY AS THE FULL SPECTRUM DISINFECTION CAPACITY OF **RELYON** KILLS ALL IN WATER COMMON MICRO-ORGANISMS, VIRUSES AND PATHOGENS (INCLUDING LEGIONELLA CONTROL);
- **RELYON** REMOVES THE BIOFILMS AND INHIBITS THE REFORMATION OF THIS DANGEROUS BIOFILM;
- **RELYON** DOES NOT CAUSE ALLERGIC REACTIONS (NO SKIN IRRITATION OR RUPTURES, NO ACTIVATION OF THE MUCOUS GLANCES NO EYE IRRITATION) AND DOES NOT GENERATE THE TYPICAL POOL SMELL AND THEREFORE IMPROVES THE SWIMMING EXPERIENCE;
- **RELYON** DOES NOT GENERATE TRIHALO METHANES (THM'S) OR OTHER CARCINOGENIC BY-PRODUCTS;
- **RELYON** IS NOT CORROSIVE AND ERRONEOUS DOSING (OVER DOSING) DOES NOT CAUSE AN IMMEDIATE RISK FOR SWIMMERS;
- **RELYON** ENABLES YOU TO PROVIDE SWIMMING COMFORT WITHOUT THE USE OF CHLORINE AND DOES NOT GENERATE CHLORITE, CHLORATE OR FREE CHLORINE;
- **RELYON** IS NOT EXPLOSIVE AND A CHEMICAL SUBSTANCE WITH ONLY A LIMITED HAZARD CLASS;
- **RELYON** IS APPLIED WITH STANDARD EQUIPMENT COMMONLY USED IN THE SWIMMING POOL INDUSTRY;
- **RELYON** PROVIDES ITS SUPERIOR DISINFECTION POWER IN A BROAD PH-LEVEL BANDWIDTH (PH-LEVEL 4 TO 10);

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- THE NUMBER OF BACK FLUSH PROCEDURES MAY DECREASE(COST SAVING);
- LESS CHEMICAL USE TO OPTIMIZE MICROBIOLOGICAL CONTROL IN A POOL;
- ONLY LIMITED USE OF PH-LEVEL ADJUSTMENT CHEMICALS;
- NO USE OF CHLORINE!
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BEFORE APPLYING RELYON IN A SWIMMING POOL THE FOLLOWING STEPS SHOULD BE FOLLOWED:

- 1-STOP THE DOSING OF CHLORINE FOR AT LEAST 1 DAY AND MAXIMUM 3 DAYS;
- 2-PERFORM A STAND DISINFECTION OF 6-8 HOURS ON THE (SAND) FILTERS WITH 10PPM RELYON (BASED ON THE VOLUME OF THE SAND FILTER) AND BACK FLUSH THE FILTER(S) AFTERWARD ;
- 3-ADD A PRIMARY DOSAGE OF AT LEAST 0.6PPM AND MAXIMUM 1.0 PPM RELYON TO THE SWIMMING POOL (BASED ON THE TOTAL VOLUME OF WATER IN THE SWIMMING POOL SYSTEM) IN THE EVENING SO THAT OVERNIGHT CONTACT IS OPTIMISED WITHOUT ADDITIONAL SWIMMERS LOAD ON THE SWIMMING POOL;
- 4-AFTER THE INITIAL DOSAGE OF RELYON KEEP THE LEVEL OF RELYON IN THE POOL AT A LEVEL OF AT LEAST 0.2PPM;
- 5-A MONTHLY STAND DISINFECTION OF THE FILTERS IS RECOMMENDED.

TO CALCULATE THE REQUIRED VOLUME OF RELYON FOR A GIVEN DOSAGE RATE AND POOL WATER VOLUME , THE FOLLOWING FORMULA IS USED:

$\frac{\text{WATER VOLUME TO BE DISINFECTED X DOSAGE RATE IN PPM}}{7600} = \text{LITERS RELYON 0.76\% SOLUTION}$
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RELYON CALCULATION FORMULA

STEP 1. STOP THE DOSING OF CHLORINE

BEFORE ADDING RELYON TO THE SWIMMING POOL THE LEVEL OF CHLORINE NEEDS TO DECREASE. THEREFORE AT LEAST 1 DAY AND UP TO MAXIMUM 3 DAYS BEFORE ADDING RELYON THE DOSING OF CHLORINE TO THE POOL SHOULD BE STOPPED.(IN HOT CLIMATE CONDITIONS OR HIGH LEVEL OF UV RADIATION CONDITIONS, THIS DOSING OF CHLORINE SHOULD STOP MAXIMUM 1 DAY BEFORE APPLYING RELYON).

STEP 2. STAND DISINFECTION OF THE FILTERS

FILTER CONTAINS HIGH CONCENTRATIONS OF ORGANIC SUBSTANCES THAT CAUSE A MICROBIOLOGICAL RISK TO THE POOL.TO MINIMISE THIS RISK A STAND DISINFECTION OF THE FILTER IS REQUIRED NUMEROUS COUNTRIES OBLIGE FILTER STAND DISINFECTION BY LAW(e.g.IN SOME COUNTRIES FILTER MUST BE DISINFECTED INDIVIDUALLY AT LEAST ONCE A MONTH).

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SWIMMING POOLS MOST COMMONLY USE SAND FILTERS EITHER IN COMBINATION WITH ACTIVE COAL FILTERS. AS **RELYON** DOES NOT GENERATE THM'S THE ABSORPTION FUNCTION OF ACTIVE COAL IS NOT NECESSARY. REMOVAL OF THE ACTIVE COAL FILTER MAY THEREFORE BE CONSIDERED

FILTER DISINFECTION PROCEDURE:

- BASED ON THE VOLUME OF THE FILTER(S) ADD 10PPM OF **RELYON** TO THE FILTER.
- ALLOW A CONTACT TIME OF AT LEAST 6-8 HOURS.
- AFTER THE STAND DISINFECTION THOROUGHLY BACK FLUSH THE FILTERS.
- EXECUTE AN OPTICAL INSPECTION. IF THE FILTERS ARE HIGHLY CONTAMINATED REPEAT THE STAND DISINFECTION PROCEDURE.

STEP 3. ADD A PRIMARY DOSAGE OF 0.6PPM (MAXIMUM 1PPM) RELYON TO THE SWIMMING POOL

AFTER THE FILTER STAND DISINFECTION **RELYON** IS ADDED TO THE SWIMMING POOL.

- THE INITIAL DOSAGE LEVEL OF **RELYON** IS HIGHER AS IF READILY REACTS WITH ALL ORGANIC COMPOUNDS (E.G. BACTERIA, BIOFILM, DISSOLVED ORGANICS ETC).
- AFTER ADDING THE INITIAL DOSING LEVEL THE MINIMUM REQUIRED LEVEL OF **RELYON** IN THE SWIMMING POOL MUST BE 0.2 PPM. ADD THIS INITIAL DOSING IN THE EVENING WHEN THE POOL IS NO LONGER USED.
- AS **RELYON** REMOVES (GRADUALLY) THE BIOFILM (THAT CHLORINE CANNOT REMOVE) SPECIAL ATTENTION IS REQUIRED AS STRINGS OF BIOFILM MAY RELEASE AND ENTER INTO THE POOL SYSTEM. POSSIBLE TEMPORARY INCREASE OF BACTERIA COUNT MAY BE ANTICIPATED WHEN THE BIOFILM IS RELEASING. REGULARLY THE FILTERS AND GRIDS NEED TO BE INSPECTED AND BACK FLUSHED WHEN NECESSARY. EXTRA FILTERING MAY BE REQUIRED.

IT MAY TAKE BETWEEN 5 TO 12 DAYS BEFORE THE BIOFILM RELEASE ACTUALLY STARTS. DEPENDING ON THE AMOUNT OF BIOFILM IN THE SYSTEM IT MAY TAKE UP TO SIX WEEKS BEFORE THE TOTAL BIOFILM IS REMOVED FROM THE POOL SYSTEM. BIOFILM REMOVAL IS UNPREDICTABLE AND SHOULD ALWAYS BE MONITORED (IT MAY TAKE EVEN SEVERAL MONTHS BEFORE STICKY BIOFILM PARTICLES ARE REMOVED BY **RELYON**)

STEP 4. KEEP THE LEVEL OF RELYON IN THE POOL AT 0.2PPM

IN ORDER TO MAINTAIN THE LEVEL OF **RELYON** AT A MINIMUM OF AT LEAST 0.2PPM AT ALL TIMES DOSING AND MEASURING EQUIPMENT NEED TO BE USED TO PROVIDE PERMANENT DISINFECTION CAPACITY TO THE SWIMMING POOL.

A TYPICAL PERMANENT AND AUTOMATIC SYSTEM FOR CONTINUOUS DOSING OF **RELYON** CONTAINS VARIOUS EQUIPMENT COMPONENTS THAT NEED TO BE INSTALLED. THE TECHNICAL EQUIPMENT TO

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APPLY **RELYON** INTO A SWIMMING POOL IS STANDARD AVAILABLE IN THE MARKET. THE LEVEL OF SOPHISTICATION OF THE DOSING SYSTEMS MAY DEPEND ON CUSTOMER REQUIREMENTS. VERY OFTEN THE DOSING EQUIPMENT OF CHLORINE CAN BE USED TO APPLY **RELYON**.(ASK YOUR EQUIPMENT SUPPLIER).

A TYPICAL DOSING SYSTEM FOR **RELYON** FEATURES:

- A DOSING PUMP(ACID RESISTANT);
- A BLACK PE-HD STORAGE VESSEL + ONE SPARE STORAGE VESSEL;
- A REDOX SENSOR;
- AN INJECTION POINT (PLACED BEHIND THE FILTER AND BEHIND THE FLOW PUMP)
- A SIMPLE OR SOPHISTICATED CONTROL UNIT TO MANAGE THE DOSING PUMP AND SENSOR (IF NECESSARY LINKED TO THE INTEGRAL BUILDING MANAGEMENT CONTROL SYSTEM)

THE LEVEL OF **RELYON** IN THE SWIMMING POOL CAN BE MEASURED ON LINE AND MANUALLY.

MANUAL MEASURING:

THE MANUAL MEASURING OF **RELYON** IS EXECUTED WITH A PHOTOMETER/SPECTRO PHOTOMETER WITH DPDI (THE PHOTOMETER SHOULD HAVE A CIO₂ SETTING IN THE MENU).CONSULT THE MANUAL OF THE PHOTOMETER FOR THIS FEATURE).

ONLINE MEASURING:

RELYON IS MEASURED ONLINE WITH A REDOX SENSOR.THE SENSORS SHOULD BE CALIBRATED ACCORDING TO THE MANUFACTURER`S DIRECTIONS.(THE TYPICAL REDOX VALUE FOR A SWIMMING POOL IS 740 MVA_(MINIMUM 720 MVA).

STEP 5.MONTHLY STAND DISINFECTION OF THE FILTERS

THE EXECUTION OF A PERIODICAL STAND **DISINFECTION** OF THE FILTERS IS HIGHLY RECOMMENDED AS THE ACCUMULATION OF ORGANIC COMPOUNDS MAY CONTRIBUTE TO THE LEVEL OF MICROBIOLOGICAL CONTAMINATION. SEE STEP 2 IN THIS DOCUMENT FOR THE STAND DISINFECTION PROCEDURE.

IF THE FILTERS ARE SMALL (E.G. A WHIRLPOOL) A CONTACT VESSEL WITH COVER MAY EASE THE FILTER DISINFECTION PROCEDURE.

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TOPICS TO BE CONSIDERED:

- IF THE CURCIT CONTAINS PUMPS WITH RUBBER SLEEVES.THESE SLEEVES MAY CONTAIN A HIGH DEPOSIT OF ORGANICS, E.G. BIOFILM AND ALGAE AS ORGANIC SUBSTANCES HAVE A TENDANCY TO DEPOSIT ON RUBBER.
- IT IS IMPORTANT TO UNDERSTAND THAT AN OUTSIDE POOL ENDURES MORE INFLUENCE FROM TEMPERATURE, DIRECT SUNLIGHT AND UV RADIATION.THESE THREE FACTORS MAY INFLUENCE THE CONSUMPTION OF RELYON .THEREFORE COVERING A POOL WHEN NOT IN USE IS ADVISED.
- THE STANDARD LEVEL OF RELYON IN A SWIMMING POOL OR WHIRLPOOL IS 0.3PPM THE STANDARD LEVEL MAY DEVIATE DEPENDING ON LOCAL LAWS AND REGULATIONS.
- EXTRA MONITORING AND EXTRA ADDITION OF RELYON MAY BE REQUIRED AFTER THUNDER/LIGHTNING WEATHER CONDITIONS AS THESE HAVE THE SAME EFFECT ON RELYON AS THEY HAVE ON CHLORINE.(OXIDIZERS MAY COMPLETELY DISAPPEAR DURING THUNDER/LIGHTNING WEATHER CONDITIONS,EVEN WHEN A POOL IS COVERED).
- RELYON CAN BE USED IN COMBINATION WITH POSSIBLE PRESENT OZONE OR UV EQUIPMENT.IT IS STRONGLY ADVISABLE TO DOSAGE RELYON AFTER THE OZONE OR UV EQUIPMENT.
- RELYON PROVIDES FULL SPECTRUM DISINFECTION AT PH-LEVEL 4 TO 10. THIS MEANS THAT THE PH-LEVEL DOES NOT REQUIRE MONITORING FOR DISINFECTION EFFECTIVENESS (LIKE WITH CHLORINE!). AS POOL WATER INCLINES TO INCREASE IN PH-LEVEL THE WATER BECOMES MORE ALKALINE. THIS MAY BE NOTICED BY A DRIED SKIN OF SWIMMERS.INTERMITTENT ADDITION OF AN ACID TO THE POOL WILL DECREASE THE PH-LEVEL AND OPTIMIZES THE LEVEL OF COMFORT AND SWIMMING EXPERIENCE.
- ALWAYS RESPECT THE LOCAL LAW AND REGULATIONS(E.G. IN SOME COUNTRIES IT IS NOT ALLOWED TO MANUALLY ADD A DISINFECTANT TO A PUBLIC SWIMMING POOL ,IN SOME COUNTRIES A SPECIAL PERMIT IS REQUIRED WHEN CHLORINE IS NOT USED).IN MOST COUNTRIES MANUAL DOSING OF A DISINFECTANT IS ALLOWED IN PRIVATE POOLS.

EXAMPLE: A SWIMMING POOL WITH 320,000 LITER OF WATER:

ADD AN INITIAL DOSAGE RATE OF 0.6PPM OF RELYON TO THE SWIMMING POOL WATER VOLUME BASED ON THE FOLLOWING FORMULA:

$\frac{\text{WATER VOLUME TO BE DISINFECTED X DOSAGE RATE IN PPM}}{7600} = \text{LITERS RELYON 0.76\% SOLUTION}$
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EXAMPLE:

VOLUME OF POOL:	300,000 LITER
TOTAL VOLUME OF WATER IN THE POOL SYSTEM:	320,000 LITER
PRIMARY DOSAGE:	0.6PPM

$\frac{320,000 \times 0.6}{7600} = 25.26$ LITER **RELYON** 0.76% SOLUTION

7600

THE INITIAL DOSAGE VOLUME OF 25.26 LITER IN OUR EXAMPLE MUST BE ADDED TO THE POOL IN A SHORT TIME FRAME (MAXIMUM 2 HOURS) AFTER CLOSURE TIME IN THE EVENING. THIS CAN BE POURED IN TO THE POOL MANUALLY WHILE RESPECTING SAFETY MEASURES FROM THE MSDS AND AVOID INHALATION AT ALL TIMES. OR SET THE DOSAGE PUMP TO RAPIDLY ADD THIS INITIAL DOSAGE VOLUME OF **RELYON** IN TO THE POOL SYSTEM.

USE OF **RELYON IN PRIVATE INDOOR SWIMMING POOL WITHOUT AUTOMATIC DOSING/MEASURING SYSTEM:**

1. STOP THE DOSING OF CHLORINE FOR AT LEAST 1 DAY AND FOR MAXIMUM 3 DAYS;
2. PERFORM A STAND DISINFECTION OF 6-8 HOURS ON THE (SAND) FILTERS WITH 10PPM **RELYON**(BASED ON THE VOLUME OF THE SAND FILTER) AND BACK FLUSH THE FILTER(S) AFTERWARDS;
3. ADD A PRIMARY DOSAGE OF 0.6PPM **RELYON** TO THE SWIMMING POOL(BASED ON THE VOLUME OF WATER IN THE SWIMMING POOL)IN THE EVENING SO THAT OVERNIGHT CONTACT IS OPTIMIZED WITHOUT ADDITIONAL SWIMMERS LOAD ON THE SWIMMING POOL;
4. ADD AT LEAST EACH ONCE A WEEK A DOSAGE OF 0.2PPM **RELYON** TO THE SWIMMING POOL WATER VOLUME IN THE EVENING (= 2.63 LITER **RELYON** PER 100,000 LITER SWIMMING WATER). THIS ENSURES THAT OVERNIGHT CONTACT IS OPTIMIZED WITHOUT ADDITIONAL SWIMMERS LOAD ON THE SWIMMING POOL;
5. WHEN THERE ARE OUTSTANDING WEATHER CONDITIONS(HOT AND SUNNY) AND WHEN THE SWIMMING POOL IS VERY INTENSIVELY USED.ADD A DOSAGE OF 0.2PPM **RELYON** TWO TIMES PER WEEK;
6. A MONTHLY STAND DISINFECTION OF THE FILTERS IS RECOMMENDED;
7. WATCH OUT FOR LIGHTNING WEATHER CONDITIONS AS LIGHTNING HAS THE SAME EFFECT ON **RELYON** AS THEY HAVE ON CHLORINE. (OXIDIZERS DISAPPEAR WITH LIGHTNING EVEN WHEN A POOL IS COVERED);
8. IT IS STRONGLY ADVISED THAT THE INDOOR POOL IS COVERED OVER NIGHT AND WHEN NOT IN USE (EQUAL TO CHLORINE).

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USE OF RELYON IN PRIVATE OUTDOOR SWIMMING POOL WITHOUT AUTOMATIC DOSING/MEASURING SYSTEM:

1. STOP THE DOSING OF CHLORINE FOR AT LEAST 1 DAY AND FOR MAXIMUM 3 DAYS;
2. PERFORM A STAND DISINFECTION OF 6-8 HOURS ON THE (SAND) FILTERS WITH 10PPM RELYON (BASED ON THE VOLUME OF THE SAND FILTER) AND BACK FLUSH THE FILTER(S) AFTERWARDS;
3. ADD A PRIMARY DOSAGE OF 0.6PPM RELYON TO THE SWIMMING POOL (BASED ON THE VOLUME OF WATER IN THE SWIMMING POOL) IN THE EVENING SO THAT OVERNIGHT CONTACT IS OPTIMIZED WITHOUT ADDITIONAL SWIMMERS LOAD ON THE SWIMMING POOL;
4. DURING SUMMER TIME: ADD TWO TIMES PER WEEK A DOSAGE OF 0.2PPM RELYON TO THE SWIMMING POOL IN THE EVENING (=2.63 LITER RELYON PER 100,000 LITER SWIMMING WATER).THIS ENSURES THAT OVERNIGHT CONTACT IS OPTIMIZED WITHOUT ADDITIONAL SWIMMERS LOAD ON THE SWIMMING POOL;
5. WHEN THERE ARE OUTSTANDING WEATHER CONDITIONS(HOT AND SUNNY) AND WHEN THE SWIMMING POOL IS VERY INTENSIVELY USED ADD A DOSAGE OF 0.3PPM RELYON TWO TIMES PER WEEK TO THE SWIMMING POOL IN THE EVENING;
6. A MONTHLY STAND DISINFECTION OF THE FILTERS IS RECOMMENDED;
7. WATCH OUT FOR LIGHTNING_WEATHER CONDITIONS AS LIGHTNING HAS THE SAME EFFECT ON RELYON AS THEY HAVE ON CHLORINE.(OXIDIZERS DISAPPEAR WITH LIGHTNING EVEN WHEN A POOL IS COVERED).
8. IT IS STRONGLY ADVISED THAT THE INDOOR POOL IS COVERED OVER NIGHT AND WHEN NOT IN USE (EQUAL TO CHLORINE).

BIOFILM RELEASE CONSIDERATIONS

IN MOST CASES A POOL HAS BEEN TREATED WITH CHLORINE.PRIOR TO THE USE OF RELYON.THE USE OF CHLORINE ALMOST GUARANTEES THE PRESENCE OF BIOFILM IN THE TOTAL POOL SYSTEM.BIOFILM CAN BE NOTICED ON THE CERAMIC TILES IN THE POOL (SLIMY SEDIMENT), BUT IT IS VERY DIFFICULT TO DETERMINE THE INTENSITY OF THE VOLUME OF BIOFILM SEDIMENT PRESENT IN THE PIPELINES.FUTHER IT IS VERY DIFFICULT TO PREDICT HOW STICKY A BIOFILM LAYER IS.

AFTER THE INITIAL DOSAGE OF 1PPM RELYON TO THE POOL THE SCANVENGING AND REMOVAL PROCESS OF THE BIOFILM STARTS AND WILL CONTINUE UNTIL THE BIOFILM IS COMPLETELY REMOVED FROM THE SYSTEM.THIS REMOVAL PROCESS MAY TAKE SOME TIME (IN MOST CASES WITHIN 6 WEEKS BUT IN SOME CASES, THE LAST BIOFILM PARTICLES WERE REMOVED AFTER A SOME MONTHS OF CONTINUOUS USE OF RELYON).

WITHIN 2-3 DAYS SOME BIOFILM SEDIMENTS MAY BE DETECTED OPTICALLY IN THE POOL.THIS IS THE SOFT PART OF THE BIOFILM THAT READILY REACTS WITH RELYON. BY EXTRA FILTRATION AND APPROPRIATE MEASURES THIS SOFT PART OF THE BIOFILM CAN SIMPLY BE REMOVED FROM THE SWIMMING POOL. DURING THIS STAGE SOME MORE TURBIDITY MAY BE NOTICED IN THE SWIMMING POOL.THIS EFFECT CANNOT BE AVOIDED BUT RELYON ALREADY PROOFS ITS SUPERIOR CHARACTERISTICS OF OXIDATION AND DISINFECTION THAT WERE NOT AVAILABLE WHEN USING CHLORINE!

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AFTER REMOVAL OF THE SOFT PART OF THE BIOFILM, **RELYON** WILL START WITH THE REMOVAL OF THE THOUGH PART OF THE BIOFILM.THIS IS THE LAYER THAT HAS BEEN BUILD UP DURING TIME AND THAT CHLORINE COULD NEVER REMOVE.THIS BIOFILM CONTAINS HIGH LEVELS OF ORGANICS AND CONTAINS AND HIDES COLONIES OF BACTERIA.

IN GENERAL AFTER 10-14 DAYS THE BIOFILM STARTS TO RELEASE FROM THE PIPELINES AND THIS MOSTLY HAPPENS AS A COMBINATION OF LARGE STRINGS AND SMALL CHIPS OF BIOFILM WITH A BROWN COLOR.DURING THIS TIME THE BACTERIA COUNT IN THE WATER MAY INCREASE AS COLONIES OF BACTERIA ARE RELEASED TOGETHER WITH THE BIOFILM.

EXTRA ATTENTION TO FILTERATION IS REQUIRED AND POOL OPERATORS SHOULD REGULARY INSPECT THE POOL AND (OBVIOUSLY)THE SAFETY OF SWIMMERS SHOULD BE CONSIDERED AT ALL TIME.

THE BIOFILM PRESENCE IMPLIES THAT DURING THE FIRST WEEKS OF USING **RELYON** IN A SWIMMING POOL THE CONSUMPTION OF **RELYON** MAY BE HIGHER AS NOT ONLY THE NORMAL DISINFECTION TAKE PLACE. THE BIOFILM AND BACTERIA COLONIES IN THE BIOFILM ARE UNDER CONTINUOUS EXPOSURE OF **RELYON** AND THE OXIDATION AND DISINFECTION POWER CONTRIBUTES TO THE CONSUMPTION OF **RELYON** PRESENT IN THE POOL WATER.

IT IS DIFFICULT TO PREDICT HOW LONG THIS BIOFILM REMOVAL PROCESS TAKES AS THE IDENTIFICATION OF THE VOLUME OF BIOFILM IS VERY DIFFICULT AND FACTORS LIKE THE AGE OF THE POOL SYSTEM PLAY AN IMPORTANT ROLE TOO.(A NEW POOL OBVIOUSLY CONTAINS LESS BIOFILM THAN A POOL FACILITY BUILT 25 YEARS AGO!).

BEAR IN MIND THAT IN ADDITION TO DISINFECTION **RELYON** CLEANS UP THE MESS THAT CHLORINE HAS LEFT BEHIND!

THE BIOFILM REMOVAL PROCESS IS VERY UNPREDICTABLE AND SHOULD ALWAYS BE MONITORED. IN SOME CASES IT MAY TAKE EVEN SEVERAL MONTHS BEFORE THE LAST STICKY BIOFILM PARTICLES ARE TOTALLY REMOVED BY **RELYON**.

THE SWIMMING POOL WATER GETS A TEMPORARILY GREEN TYPE OF COLOR AFTER APPLYING RELYON

IN SOME CASES WHERE POOLS CONVERTED FROM CHLORINE TO **RELYON** SITUATIONS HAVE BEEN REPORTED WHERE THE POOL WATER DISCOLORED WITH A GREEN SHADE COLOR.

FIRST OF ALL:THE GREEN COLOR DOES **NOT** COME FROM **RELYON** ALTHOUGH THE **RELYON** 0.76% SOLUTION HAS A YELLOW/GREENISH COLOR.**RELYON** CANNOT DISCOLOR WATER INTO A GREEN COLOR.

- THE DOSAGE RATE LEVELS OF **RELYON** ARE LOW AND CANNOT CONTRIBUTE TO DISCOLORING THE WATER;

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- **RELYON** WITH SUPERB OXIDATION CAPACITIES ACTUALLY IMPROVES THE WATER COLOR (AND IS IN SOME APPLICATIONS USED AS A BLEACHING AGENT OF E.G. PAPER OR TEXTILE).

THE GREEN COLOR IS NOT CAUSED BY THE COLOR OF **RELYON** 0.76% SOLUTION BUT A RESULT FROM THE ADDITION OF **RELYON** TO THE WATER AND THE IMMEDIATE REACTION WITH (SOLUBLE) IRON AND / OR (SOLUBLE) MANGANESE. IN THE SITUATION THAT THE POOL WATER AND MAKE-UP WATER ARE COMPLETELY FREE FROM (SOLUBLE) IRON AND /OR (SOLUBLE) MANGANESE, THESE SEDIMENTS MAY BE PRESENT IN THE BIOFILM.

THE TOTAL SET OF IRON AND/OR MANGANESE IN THE BIOFILM/WATER, WITH THE RELEASE OF THE BIOFILM (CONTAINING HIGH LEVEL OF ORGANICS) CAUSES THE WATER TO TURN SLIGHTLY GREEN.

THIS IS A HARMLESS COLOR EFFECT AND IN THE MAJORITY OF CASES THE COLOR DISAPPEARS AFTER 1 DAY. WHEN DOSING AT LEVELS OF 1PPM OR MORE, THE SLIGHT GREEN COLORIZATION MAY OCCUR A LITTLE MORE OFTEN BUT DISAPPEARS TOO.WHILE THE SWIMMING POOL HAS THIS GREEN SHADE THE POOL CAN BE USED AS NORMAL.

PLEASE BEAR IN MIND THAT **RELYON** OXIDIZES THE IRON AND MANGANESE AND INCREASES THE POOL WATER QUALITY.THE TEMPORARY SLIGHTLY GREEN COLOR SHADE IS A HARMLESS EFFECT FROM THE PRESENCE OF THESE SUBSTANCES AND DISAPPEARS IN TIME.THE TEMPORARY GREEN COLOR SHADE MAY BE NOTICED TOO WHEN ADDING MAKE-UP WATER.

PAINTED IN POOLS

SOME SWIMMING POOL ARE PAINTED.PAINT VERY OFTEN CONTAINS A HIGH LEVEL OF ORGANICS AND THUS REACTS WITH **RELYON**.THIS MEANS THAT THE PAINT MAY CAUSE SOME EXTRA CONSUMPTION OF **RELYON**. PAINT THAT CONTAINS ORGANICS IS AN IDEAL PLACE FOR BACTERIA AND ALGAE TO ADHERE AND THUS CAUSES MORE ACTIVITY FROM **RELYON**.

WHEN ALGAE ARE DETECTED IN A PRIVATE SWIMMING POOL

IN THE EVENT THAT ALGAE ARE DETECTED IN A (PRIVATE) SWIMMING POOL A SHOCK DOSAGE OF **RELYON** CAN BE APPLIED. A SHOCK DOSAGE OF 3PPM-5PPM WILL KILL THE ALGAE AND BY INCREASING THE WATER TURN AROUND OPTIMIZED FILTERATION IS ESTABLISHED TO REMOVE THE ALGAE FROM THE SWIMMING WATER.AFTER A SHOCK TREATMENT WITH **RELYON** THE SWIMMING POOL SHOULD NOT BE USED FOR AT LEAST 2 HOURS TO ENSURES MAXIMUM DISINFECTION POWER FOR ALGAE REMOVAL.

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