

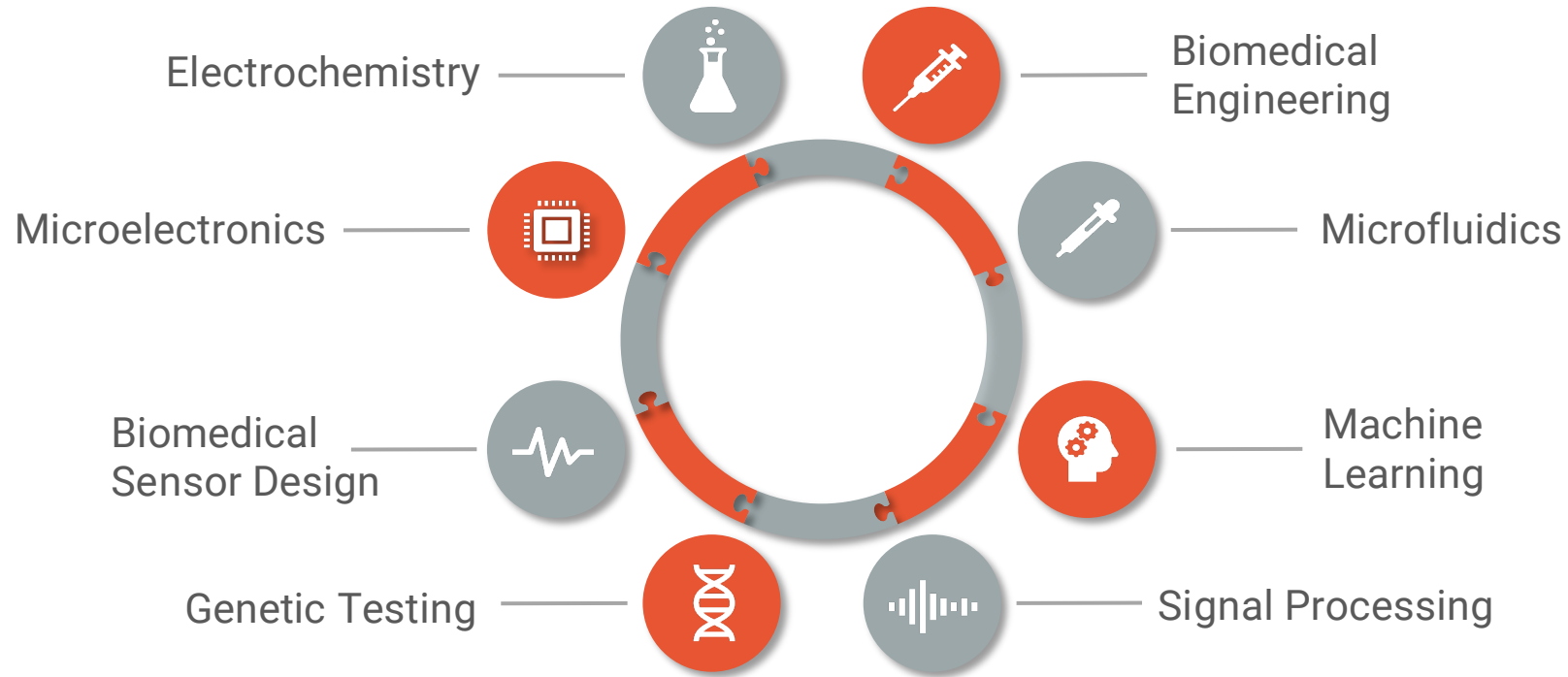
goSafe

MX3

Introducing the **first**
ever, real-time
hydration test.



COMPANY PROFILE & VISION



“Enabling rapid, LAB grade testing for health and performance”

PROBLEM



Individuals under heat stress conditions are **4X more likely** to experience occupational heat strain.



15%

Of the workforce suffer from kidney disease or acute kidney injury

30%

Of the workforce report productivity losses



35%

Of the workforce experience occupational heat strain

HEAT STRESS IS SERIOUS



National Emphasis Program (NEP) Outdoor and Indoor Heat Related Hazards

- US Labor Department April 2022

\$2.4 Trillion by 2030

Predicted global cost from lost worktime

18 of last 19 summers hottest on record
OSHA NEP

384 heat-related deaths over the last decade. *US Dept of Labor stats*



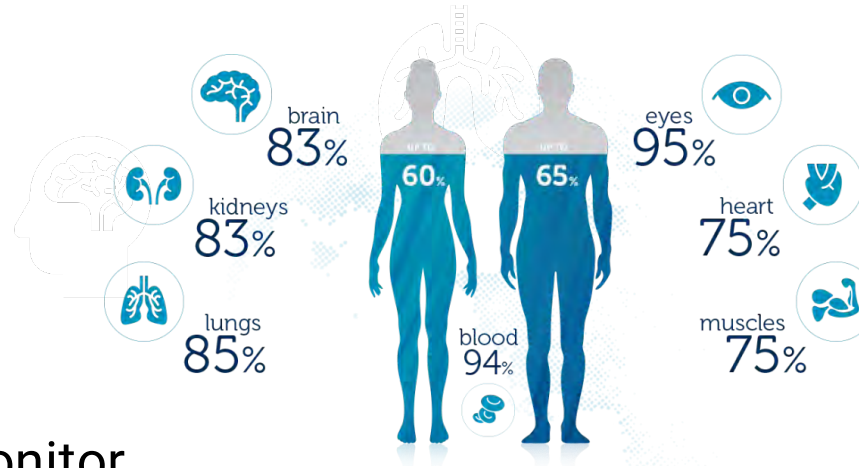
“Reducing workplace heat-related illnesses and injuries is a top priority for the Department of Labor”

- OSHA National News Release, April 12, 2022 -

OSHA Recommendations

Heat Illness Prevention

- Provide training
- Easy access to cool water
- Acclimatization
- Provide cool shaded area
- Designate a responsible Monitor



#1 way to prevent heat stress is to keep workers hydrated.

- Provide water
- Remind workers to hydrate
- Provide shade
- Water breaks

Why Monitor & Test Hydration?

Identifying workers who are Dehydrated

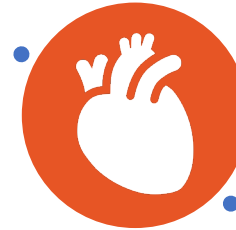
HYDRATION & WORKER PERFORMANCE



Respiration



Cardiac



Cognition



Strength and
Endurance



Preventing
Injury



THE BENEFITS

Optimal hydration is essential for maintaining peak physical condition, including:

1-2% Body Mass Loss Reduces **COGNITION, TASK PERFORMANCE, REACTION TIME, SHORT TERM MEMORY, and MOOD STATE**

WATER AVAILABILITY

Having drinking water available
doesn't mean workers will drink



78 percent of associates suffering
from heat illness were dehydrated—
despite having drinking water
available

State of California

Over 75% of workers show up
moderately dehydrated or worse

How can safety managers monitor hydration status

Tracking and monitoring hydration is a challenge, current methods include:



Lab-based Testing

Blood Plasma, Isotope Dilution

- Invasive
- Complex
- Expensive

For workplace environments, results need to be fast and labs won't work.



Urine Specific Gravity (USG)

Only reliable under strict protocols

- Proven Unreliable for Spot Checks
- Gross & Unpleasant to Handle
- Very Invasive

Has been shown NOT to be a good indicator of exertion related dehydration



Pee Color Charts

Better than nothing but

- More unreliable than USG
- Left up to the Worker's Discretion
- Hard to Document or Record

To monitor dehydration effectively managers should record results for historical tracking

SALIVARY OSMOLARITY (SOSM)

CONCENTRATION OF PARTICLES –
PREDOMINANTLY ELECTROLYTES IN SALIVA



Salivary osmolarity is a proven method for hydration testing but **not very functional**

Past (up to \$25,000)

Advanced Instruments Model 3320 Osmometer



With the **first portable salivary osmolarity testing system**, we make this test practical

Present (\$1,000)

MX3 Hydration Testing System



FDA LISTED



THE MX3 HYDRATION TESTING SYSTEM



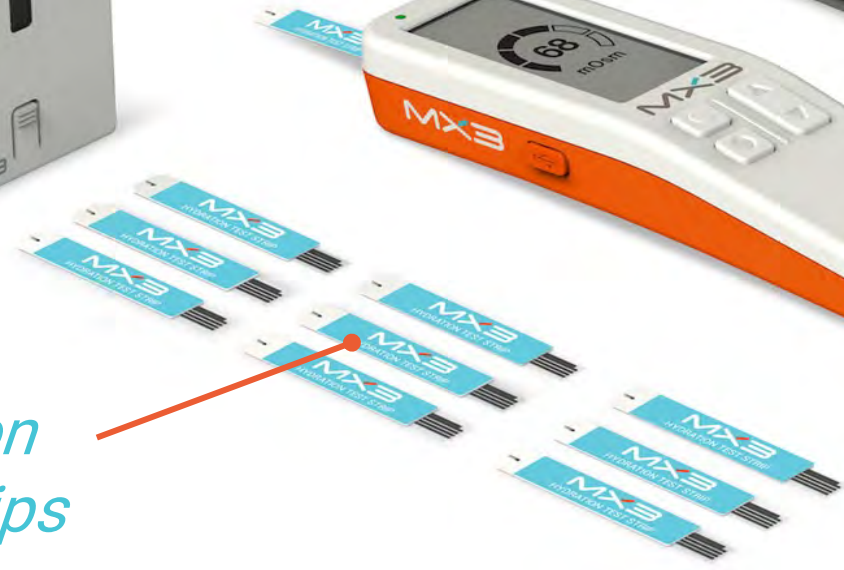
*MX3
Dispenser*



*MX3 App
and Portal*



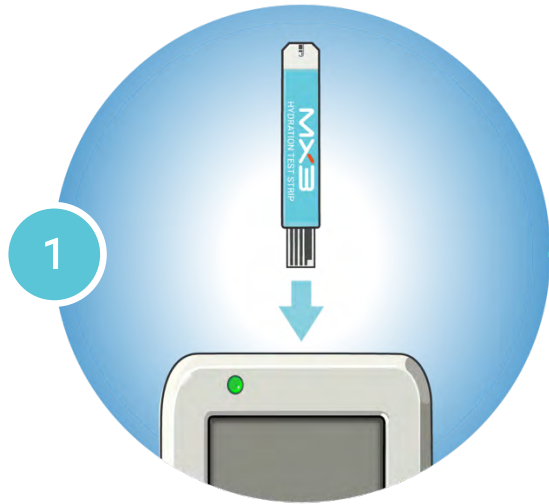
*Hydration
Test Strips*



MX3 LAB



HOW TO TAKE A HYDRATION TEST



1
Insert disposable test strip into device

The entire test takes approximately 25 seconds from start to finish



2
Take a sample anytime, anywhere

Saliva is collected from the tongue and measurement is initiated within 5 seconds



3
Immediate Results

Stored in user's profile within Admin's MX3 App and cloud-based database



4
Tracking, Alerts and Analytics

Helping Supervisors, HSE and Site managers develop risk mitigation strategies

INTERPRETING RESULTS



HYDRATED

<65



MILDLY
DEHYDRATED

66-100



MODERATELY
DEHYDRATED

101-150

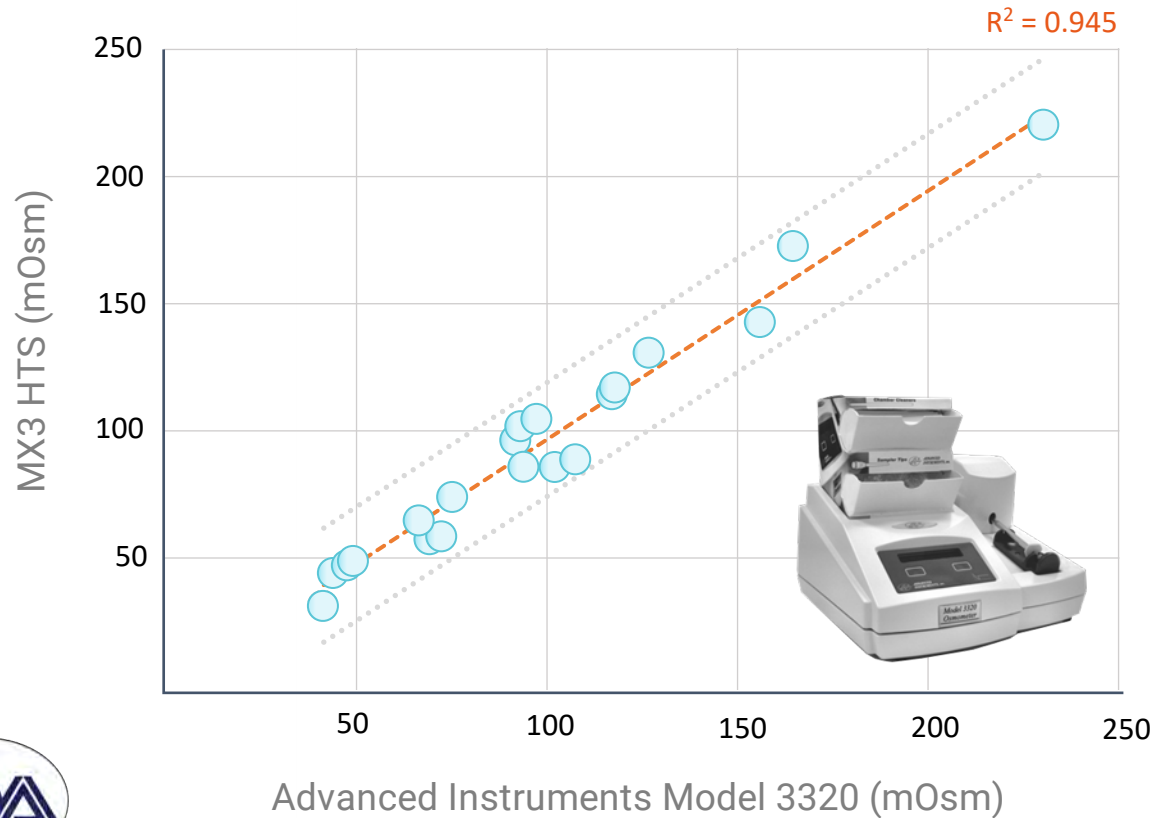


SEVERELY
DEHYDRATED

150 +



SOSM TEST STRIP: VALIDATION



FDA Listed for Hydration Assessment via Salivary Osmolarity



U.S. AIR FORCE

MX3 test data compared to FDA-approved commercial osmometer

CONCLUSION: Very accurate

($R^2 = 0.945$)

Tests conducted by the USAF

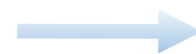
TEAM HYDRATION TRACKING: SOSM



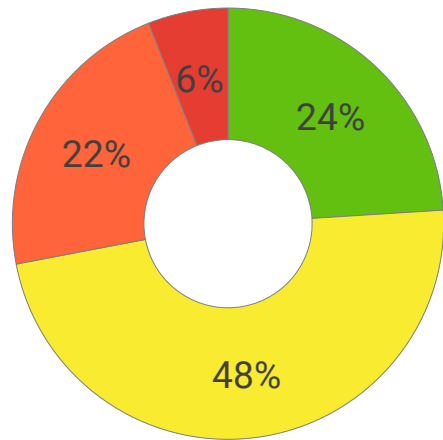
Identify Dehydrated Personnel



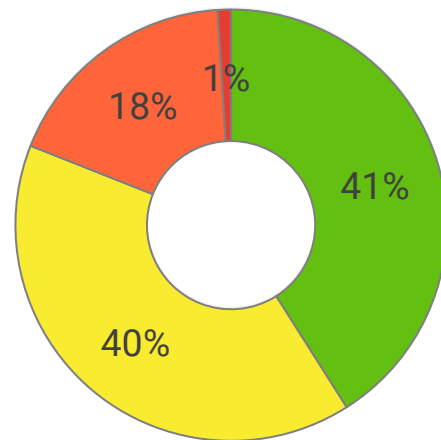
Intervention



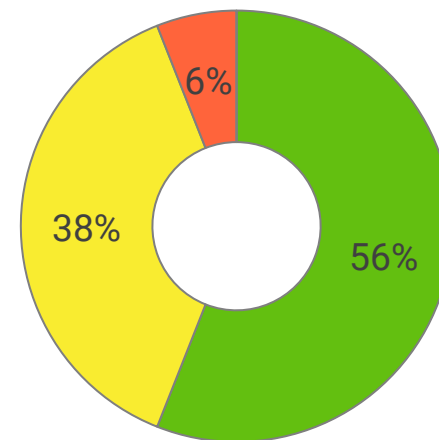
Improved Worker Hydration



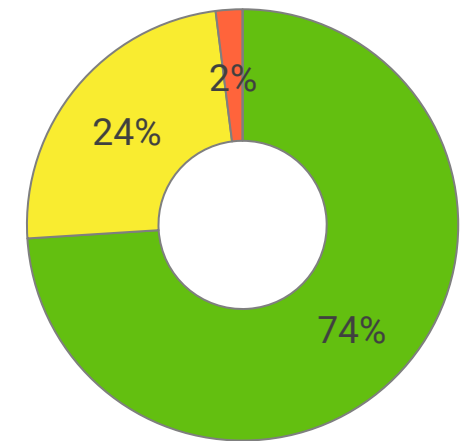
Week 1



Week 2

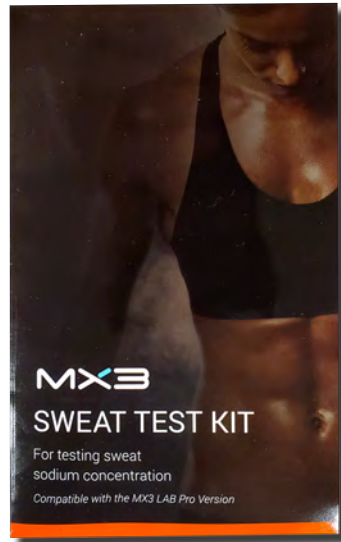


Week 3

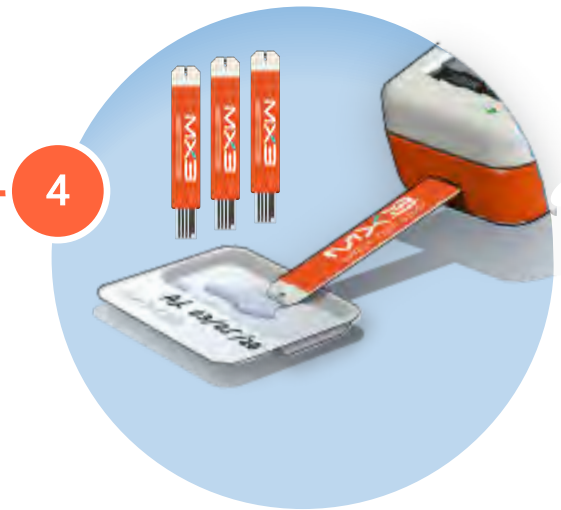
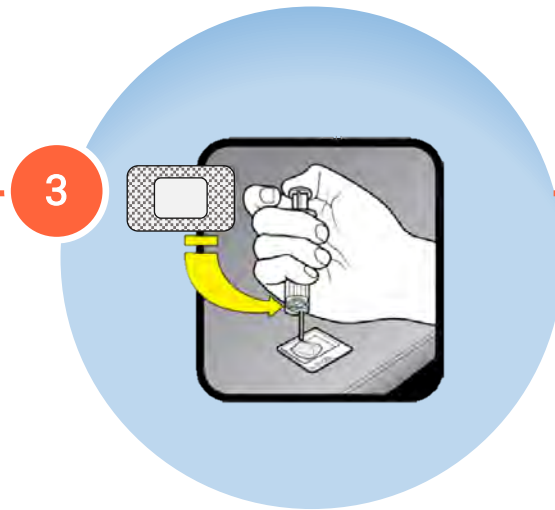


Week 4

MX3 SWEAT TEST



HOW TO TAKE A SWEAT TEST



Clean and apply sweat patch on forearm

Exercise (30-60mins)
Mod/High Intensity

Place sweat pad in plunger and extract sweat

Results in 20-30 seconds
with 3 measurements

SWEAT TEST RESULTS



710 mg/L

Low Sodium



BEFORE EXERCISE

Ingestion of a moderately concentrated (800-1000 mg/L) sodium drink or supplement the night before and ~1 hour before exercise may improve your starting hydration status by increasing plasma volume.

DURING EXERCISE

To assist with maintaining hydration during intense or extended exercise you may benefit from ingesting a low-concentration (300-700 mg/L) sodium drink or supplement.

AFTER EXERCISE

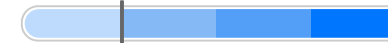
If you have a high sweat rate, or exercised for a long duration, ingesting a low-concentration (300-700 mg/L) sodium drink or supplement will assist with rehydration.

MX3 Sweat sodium test

Ryan Suter

710 mg/L

L. w Sodium



Monday, 07 December 2020 8:46 PM

Measured by: Alan Luther

Sweat sodium concentration can range from 250 mg/L to 3000 mg/L. Your result indicates that you have a *lower than average* sweat sodium concentration.

Notes

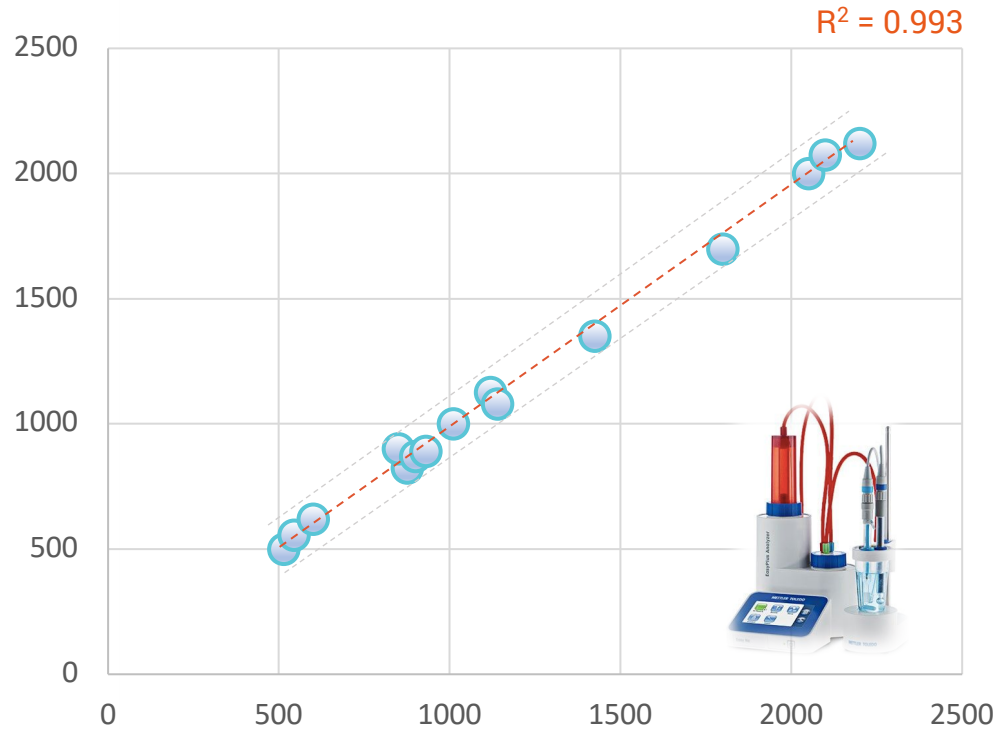
BEFORE EXERCISE	DURING EXERCISE	AFTER EXERCISE
Ingestion of a moderately concentrated (800-1000 mg/L) sodium drink or supplement the night before and ~1 hour before exercise may improve your starting hydration status by increasing plasma volume.	To assist with maintaining hydration during intense or extended exercise you may benefit from ingesting a low-concentration (300-700 mg/L) sodium drink or supplement.	If you have a high sweat rate, or exercised for a long duration, ingesting a low-concentration (300-700 mg/L) sodium drink or supplement will assist with rehydration.
Gatorade Endurance Concentration: 873 mg/L Sodium 218 mg Calories 65 Volume 250 mL	Gatorade (Original) Concentration: 457 mg/L Sodium 270 mg Calories 140 Volume 600 mL	Gatorade (Original) Concentration: 457 mg/L Sodium 270 mg Calories 140 Volume 600 mL
DripDrop ORS (30 g/L) Concentration: 990 mg/L Sodium 990 mg Calories 105 Volume 1000 mL	DripDrop ORS (20 g/L) Concentration: 660 mg/L Sodium 660 mg Calories 70 Volume 1000 mL	DripDrop ORS (20 g/L) Concentration: 660 mg/L Sodium 660 mg Calories 70 Volume 1000 mL
KODA (2 Tablet/L) Concentration: 860 mg/L Sodium 860 mg Calories 12 Volume 1000 mL	KODA (1 Tablet/L) Concentration: 430 mg/L Sodium 430 mg Calories 6 Volume 1000 mL	KODA (1 Tablet/L) Concentration: 430 mg/L Sodium 430 mg Calories 6 Volume 1000 mL

The MX3 sweat sodium test result is not medical advice. If you, your workers or your athletes are experiencing headaches, dizziness, nausea or other symptoms of dehydration please seek immediate medical attention.

SWEAT SODIUM TEST: VALIDATION



MX3 LAB Pro (mg/L)



Mettler Toledo EasyNa (mg/L)

KODAR™

MX3 test data compared to lab grade, sweat sodium electrochemical analyzer

Accuracy is **CRITICAL** as sweat tests estimate whole body sweat sodium

($R^2 = 0.993$)

SALIVA HYDRATION TEST



TEST

Prepare Measure



INTERPRET: Fluid Level

Indicates hydration status based on fluid loss.

Hydrated	Mild	Moderate	Severe
<65 mOsm	100 mOsm	150 mOsm	



ACT

Take immediate action to rehydrate the body with fluid intake.

MX3

Hydration Testing System

How It Works



SWEAT SODIUM TEST



TEST

Apply Exercise Measure



INTERPRET: Sodium Loss

Indicates sodium lost during high-intensity exercise.

Low	Moderate	High	Very High
750 mg/L	1100 mg/L	1450 mg/L	



ACT

Choose best electrolyte drink for you based on sodium loss score.



TRACK & OPTIMIZE

Track data over time in order to develop individualized plans for hydration optimization.



Customer Since 2019

- Employees: 2000
- Frequency of Hydration Measurements:
 - *Daily*

- Two biggest factor are Heat and Dehydration
- MX3 can be used by males and females without any privacy concerns
- Pre-Work (PREPARE)
 - *Identify dehydrated personnel and action rehydration strategies*

“People are Topdrill’s most important assets”

“Having a control in place that allows for instant, actionable management of Individuals hydration levels is a game changer”

Vicki Pierce – OHS Manager

SWEDEN NATIONAL FOOTBALL TEAM



Customer Since January 2019

- Squad: 26 Players
- MX3 HTS Units (2)
- Frequency of Hydration Measurements:
 - *Twice Daily during training and competition*
- Time taken to measure hydration of squad:
 - *15 minutes*

Team Implementation

- Initial Profiling
- Pre-Training (PREPARE)
 - *Identify dehydrated athletes and action rehydration*
- Post-Training (RECOVERY)
 - *Identify athletes not fully recovered and give actionable rehydration advice strategies*
- Injury Prevention

“ The MX3 HTS has allowed us to track our athlete’s hydration status and electrolyte replacement needs easily and conveniently, providing key information to help them to maintain optimal hydration ”

Dale Reese – Performance and Sports Medicine Coordinator

SAN FRANCISCO GIANTS



Customer Since SEPTEMBER 2020

- Team: 40 Players
- MX3 HTS Units (2)
- Frequency of Hydration Measurements:
 - *Daily during season*
- Time taken to measure hydration of squad:
 - *20 minutes*

Team Implementation

- Initial Profiling
- Pre-Training (PREPARE) 3-4 hours prior to training
 - *Identify dehydrated athletes and action rehydration*
- Post-Training (RECOVERY) early evening, player debrief/game preparation
 - *Identify athletes not fully recovered and give actionable rehydration advice strategies*

“The MX3’s capability of quickly and efficiently testing someone’s hydration and displaying a person’s hydration score trend is what makes it unique”.

Saul Martinez – Major League Sports Scientist

A PERFORMANCE PLATFORM FOR THE FUTURE



Hydration Testing

Measure the body's current hydration status immediately and accurately.

[LEARN MORE +](#)



Sweat Testing

Measure sweat sodium levels so you can replace lost electrolytes.

[LEARN MORE +](#)



Electrolyte Testing

Get a more complete picture of electrolyte levels.

COMING SOON



Ketones Testing

Monitor ketone levels precisely.

COMING SOON



Lactate Testing

Measure levels of Lactic acid easily.

COMING SOON



pH Testing

Quick test that determines salivary pH.

PROTOTYPE

GLOBAL EXPOSURE



OVER 2 MILLION
tests sold to date

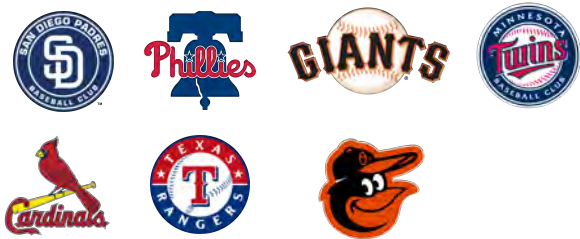
Some of the largest industrials in the world with thousands of employees depending on MX3 each day



SOME OF OUR ADDITIONAL CUSTOMERS



MLB



NBA



NFL



SOCCER



OLYMPIC



COMBAT



NCAA



RUGBY



MILITARY



EMS



MINING



MX3

Thank you.

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